

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Special Access Rates for Price Cap Local)	WC Docket No. 05-25
Exchange Carriers)	
)	
)	
AT&T Corporation Petition for Rulemaking to)	RM-10593
Reform Regulation of Incumbent Local)	
Exchange Carrier Rates for Interstate Special)	
Access Services)	

COMMENTS OF AT&T INC.

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Pursuant to the Commission’s *Notice*,¹ AT&T Inc. (“AT&T”) respectfully submits these comments.

INTRODUCTION

For the better part of a decade, competitive LECs have demanded that the Commission dictate the rates and terms of incumbent LEC special access services, based on bare assertions that there are no marketplace alternatives to those services. But they have refused to disclose the scope and capabilities of their own competing networks, even as marketplace developments increasingly discredited their claims. Wireless carriers that had asserted that their special access backhaul was “locked in” to ILEC DS_n services have since transferred most of that business to a wide variety of Ethernet suppliers through competitive bidding. The four largest cable companies, whose “best efforts” services supposedly could not compete with ILEC services, have each managed to compete away billions of dollars of sales. And the CLECs themselves

¹ Report and Order and Further Notice of Proposed Rulemaking, *Special Access for Price Cap Local Exchange Carriers*, 27 FCC Rcd. 16318 (rel. Dec. 18, 2012) (“*Notice*”).

have continued to expand their fiber networks throughout the areas where special access demand is concentrated and have emerged as leading suppliers of next-generation Ethernet-based services. Nonetheless, they continue to advocate the intrusive, investment-chilling rate regulation of the past, even as the industry transitions to the IP-based networks of the future.

The Commission should be devoting its scarce resources to facilitating the transition to IP-based networks, not to a large-scale, quixotic investigation into whether it should re-impose long outdated rate regulation on legacy TDM-based services that have entered a permanent and irreversible decline. If the Commission intends to continue this inquiry, however, the promise of a mandatory data collection is the first important step in calling the CLECs' bluff. If the CLECs (finally) comply with the forthcoming data requests, they will no longer be able to deny the presence of vibrant facilities-based competition. Once the data are in hand, the Commission can test the CLECs' claims about the scope of competitive network deployment, which will allow it both to fashion appropriate pricing flexibility rules and to further deregulate where appropriate.

The *Notice*, however, proposes a far broader and more complex inquiry, in which the Commission would perform "multi-faceted" panel regression analyses to determine the effects of various marketplace factors on special access prices and the existence of market power. That goes far beyond what is necessary in this proceeding, would raise a host of methodological and econometric difficulties that may prove insurmountable, is unlikely in the end to produce an administrable test for pricing flexibility, and would almost certainly mire the industry and the Commission in protracted and costly proceedings for years to come.

If the Commission nonetheless attempts such an analysis, both the law and sound econometric practice require complete transparency to ensure that any results are statistically robust and that the analysis can be independently tested. But the Commission should not lose

sight of the primary goal in this proceeding, which is to use the data it is gathering to fashion *easily administrable* pricing flexibility rules that rely upon readily observable metrics that can serve as reasonably accurate proxies for the presence of competitive facilities investment.

As both the Commission and the courts have recognized, “the presence of facilities-based competition with significant sunk investment makes exclusionary pricing behavior costly and highly unlikely to succeed,” because “that equipment remains available and capable of providing service in competition with the incumbent, even if the incumbent succeeds in driving that competitor from the market.”² And where other carriers have deployed networks with excess capacity, that can be operated at low marginal cost, and that can be incrementally expanded to nearby locations when business opportunities present themselves, it is reasonable to rely on market forces to produce “just and reasonable” prices.³

The disagreement in this proceeding over the past decade has focused not on the validity of these basic economic principles, but on whether the readily observable “proxy” that the Commission adopted for sunk network investment – fiber-based collocations – has proven to be a reasonably accurate predictor of competitive network deployment in those areas where there is significant special access demand. In its *Pricing Flexibility Suspension Order*, the Commission assumed, in the absence of a complete record, that the collocation proxies were not working as intended.⁴ The existing rules certainly are not “perfect” – after all, a collocation-based trigger does not reflect facilities investment by intermodal competitors such as cable companies and

² *WorldCom, Inc. v. FCC*, 238 F.3d 449, 458-59 (D.C. Cir. 2001) (*quoting* Fifth Report and Order and Further Notice of Proposed Rulemaking, *Access Charge Reform*, 14 FCC Rcd. 14221, ¶ 80 (rel. Aug. 27, 1999) (“*Pricing Flexibility Order*”)).

³ *Pricing Flexibility Order* ¶¶ 142-43.

⁴ Report and Order, *Special Access for Price Cap Local Exchange Carrier*, 27 FCC Rcd. 10557, ¶¶ 7, 50, 52, 74-75, 81, 83 (rel. Aug. 22, 2012) (“*Pricing Flexibility Suspension Order*”).

fixed wireless providers. But the search here is not for a nonexistent, “perfect” proxy, but rather a reasonably good one that is “administratively feasible” to apply.⁵

Insofar as the forthcoming data collection effort follows through on the Commission’s expressed intention to require *all* providers to submit detailed information about the scope and location of their networks, it should allow the Commission to determine where competitors have sunk investment in network facilities capable of serving special access customers. This should allow the Commission to assess the probative value of collocation or other readily observable metrics and to adjust its triggers or the geographic scope of relief as appropriate. Such an analysis would be much more useful in answering the immediate question before the Commission, and is likely to be actually doable in the time frame the Commission has allotted.

The *Notice*, however, proposes a much more complex analytical exercise that appears to expand the substantive scope of this proceeding considerably. The Commission intends to conduct a “one-time, multi-faceted market analysis of the special access market designed to determine where and when special access prices are just and reasonable.”⁶ The Commission’s stated intent is to “help the Commission determine whether any market participants have market power and, if so, where such market power exists,” in the hope that the Commission can discover “the sources of such market power, the likely extent to which it is sustainable over time, and how to construct (where required) targeted regulatory remedies.”⁷ The Commission also seeks to “identify measures of actual and potential competition that are good predictors of competitive behavior, for example, by demonstrating that prices tend to decline with increases in the intensity

⁵ *Notice* ¶ 77.

⁶ *Id.* ¶ 67.

⁷ *Id.*

of various competition measures, holding other things constant.”⁸ The Commission proposes to model these marketplace effects by conducting granular, “econometrically sound panel regressions.”⁹

Even if feasible, such an analytical framework, with its focus on “market power” and the influence of specific marketplace factors on special access “prices,” is tantamount to a full blown dominance/non-dominance inquiry. The current pricing flexibility rules seek only to provide a measure of deregulation *within the context of overarching dominant carrier regulation*; an ILEC granted pricing flexibility must still file tariffs, must still charge “just and reasonable” and nondiscriminatory rates, and is still subject to suit under section 208 of the Communications Act.

To be sure, the type of econometric analysis the *Notice* proposes to conduct might provide valuable information about the special access marketplace – *if it could be structured and implemented in a statistically sound way*. For example, such analysis would undoubtedly show that there are many areas in which competitive intensity is so strong that complete deregulation is warranted. But as explained below and in the accompanying declaration of Professor Igal Hendel and Dr. Mark Israel, the Commission will face a host of very serious challenges in ensuring that the proposed panel regressions are econometrically sound and thus can provide any meaningful results. Failing properly to control for any one of these issues could render the results statistically invalid. Together these issues could render the entire project unmanageable. Indeed, the analysis the Commission proposes to undertake would be vastly more complex than similar, previous exercises – such as the search for a defensible “X-Factor” – that ended up in a morass of contested studies and years of inconclusive litigation.

⁸ *Id.*

⁹ *Id.* ¶ 71.

First, the Commission will face a massive task in simply assembling a usable dataset to be used in the panel regressions. The companies subject to the forthcoming data request will be submitting millions of data points, and it is already clear that these companies will submit those data in formats that will not be consistent and commensurable. Many companies have already indicated they do not have data of the types or in the form sought by the Commission. The data thus will contain inconsistencies, gaps, and outliers – not just across respondents, but also within the data provided by individual companies. Further, these data will reflect a variety of company-specific reporting conventions and practices. The failure to reconcile and process these “noisy” data in an econometrically sound manner could render the regression invalid at the start.

Even if the Commission could assemble a usable and accurate dataset, it will then face numerous, significant econometric problems in designing and carrying out the regressions it proposes. For example, the Commission’s apparent choice of price as the dependent variable is highly problematic. The proposed regression analysis would model price as a function of various location-specific factors, but even if location-specific prices, standing alone, could be viewed as demonstrating the relative competitiveness of the special access marketplace, they are simply not observable in the real world. Rather, regional operating companies typically tariff region-wide prices for such services and then negotiate individualized contracts that cover multiple locations and areas and provide a single, blended credit. In these circumstances, prices attributed to any one geographic area or to any one location may thus reflect “local” conditions across all areas covered by the contract. Equally important, purchase commitments and associated discounts are often negotiated across a range of services, encompassing both special access in areas with different levels of pricing flexibility relief and other unregulated services such as OCn, Ethernet, and traditional long distance services.

Negotiated contracts may even include lump sum credits that apply if the customer's total purchases (again, for many services across many locations) meet an agreed-upon amount of revenue. The lack of location-specific prices for special access services – and the reality that rates in many locations remain capped at arbitrarily-determined levels – call into question the very design of the model.

Another major econometric complication stems from the fact that the Commission's stated goal is to model price as a function of "independent" variables that are not really independent of price – principally variables relating to market structure, such as the number of competitors.¹⁰ Price and market structure variables are almost certainly jointly determined by a host of underlying factors that determine the profitability of special access service, such as demand density and topography. Accordingly, any attempt to model price against endogenous variables like market structure runs a severe risk of showing spurious correlations that misstate the real marketplace dynamics. A related concern, which the Commission recognizes, is that a regression analysis will produce unreliable results if important independent variables are omitted, and thus the Commission proposes to "control[] for *all* other factors that affect prices."¹¹ There are, of course, very many such variables, however, and many of these are not readily observable; the Commission would have to collect the data for most of these variables independently of the data it receives in response to the mandatory data collection effort.

The fact that the proposed panel regressions cover data from only two points in time, 2010 and 2012, also severely limits the usefulness of the regression. Panel regressions derive their potential power by pooling time series observations with cross-sectional ones. But time series variance in the Commission's proposed data collection is likely to be quite constrained.

¹⁰ *Id.* ¶ 68.

¹¹ *Id.* (emphasis added).

To the extent the Commission is seeking to model how changes in factors such as market structure impact prices, the regression may in many cases have no changes to test; many special access prices are set by three- to five-year contracts that may straddle both points in time.

More fundamentally, an appropriate analysis must be *forward-looking*. The regression proposed by the Commission can, by definition, only determine the historical relationship between prices and market structure. But such an analysis may be of little value to the extent that the relevant relationship between price and market structure can be expected to change in the future. That is acutely the issue with the two-year period the Commission proposes to consider here, because that period of time has seen rapid technological change and a marketplace shift from the TDM services at issue to newer, unregulated broadband technologies such as Ethernet.

Given the breadth of these methodological challenges, transparency in the Commission's process is absolutely essential. Indeed, one of the most serious concerns at this early juncture is the fact that the Commission has yet to disclose any of the specifications it plans to use in its proposed regression analyses. Regression analysis is a tool for testing hypotheses that are grounded in sound economic theory. The Commission has yet to state what its hypotheses are, and it would be a misuse of regression to make serial adjustments to a broad regression model until supposedly "statistically significant" results are obtained. To ensure that agencies do not engage in such improper data mining, the Administrative Procedure Act, the Commission's own Data Quality Act guidelines, controlling Executive Orders, and sound econometric practice all require the agency to provide, subject to appropriate protective order and confidentiality safeguards, full access to the dataset itself, to disclose fully the process by which it attempts to makes the dataset consistent, to provide advance notice of, and an opportunity to comment on, the specifications it plans to test, and to disclose the full iterative process under which those

specifications are modified if (as too often occurs) different specifications are tried to improve the “accuracy” of the model.¹²

In all events, the Commission should keep an open mind about whether such an enormous undertaking is necessary or appropriate, because all of this work could easily end up for naught. The goal here is to develop an *administrable* test that would permit LECs to exercise pricing flexibility in appropriate circumstances. It is far from clear how the proposed “one-time” analysis, which focuses on location-specific factors, will yield a new test that is administrable. The factors that the Commission proposes to test, such as the number of actual and potential facilities-based competitors at any given location and location-specific demand, are not readily observable from publicly available data and thus do not lend themselves to an administrable test, even if the Commission is able to establish a statistically significant relationship between some of these factors and the special access “price.” A location-specific test would quite obviously be completely unworkable, as would any test that required the Commission constantly to collect and update detailed marketplace data. The only administrable test is likely to remain some sort of readily observable indicator of the existence of competitive facilities – a test which also flows directly from the theory of pricing flexibility.

The Commission also seeks comment on how its analysis may relate to regulation of the terms and conditions of special access contracts. Courts, economists, and the Commission all recognize that term and volume discounts are generally pro-competitive, and therefore a blanket rule against such terms would be unwarranted and unsustainable. The *Notice* asks proponents of such prohibitions to identify the “specific terms and conditions” they allege to be “unjust or

¹² See, e.g., *Chamber of Commerce of the United States v. SEC*, 443 F.3d 890, 901 (D.C. Cir. 2006); *Am. Radio Relay League v. FCC*, 524 F.3d 227, 239 (D.C. Cir. 2008); *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375, 393 (D.C. Cir. 1973).

unreasonable, and in what contexts,” and “what would be the most effective remedy or remedies.”¹³ As AT&T has previously demonstrated, recent claims by CLECs that specific terms in AT&T’s special access tariffs and contracts are anti-competitive are entirely without foundation and almost invariably rest on blatant misrepresentation of the specific terms at issue as well as of the broader give and take of negotiated agreements among sophisticated parties.

In short, the Commission should stay focused on the primary task at hand, which is to re-establish workable, easily administrable pricing flexibility triggers. This marketplace is undergoing profound change: the legacy TDM services at issue have begun an irreversible decline as special access customers shift their purchases to Ethernet and other broadband alternatives. Intrusive new price regulation of DSnn services threatens to slow this healthy and inevitable transition to IP services by retarding investment in the broadband networks of the future. For these reasons, the Commission should think twice about whether it should undertake the sort of extraordinarily complex panel regression analyses proposed here if the only purpose of such efforts would be counterproductive price regulation of (and endless litigation regarding) services that are already well into decline and from which the Commission should be facilitating the industry’s transition. There is no need to assemble an enormous cannonade to shoot at targets that are receding into the distance.

I. THE COMMISSION SHOULD USE THE MARKETPLACE DATA IT IS GATHERING TO DEVELOP ADMINISTRABLE TRIGGERS FOR PRICING FLEXIBILITY.

In the *Notice*, the Commission properly determined that it will gather the full range of facilities data necessary for a rigorous evaluation of its pricing flexibility rules – data that proponents of more constrictive common carrier regulation have steadfastly refused to provide

¹³ *Notice* ¶ 93.

for years. In so doing, the Commission correctly rejected arguments by regulatory proponents to bias the analysis at the outset by excluding important sources of intermodal competition, and made clear that it will collect competitive data from “*all* providers ... of special access services,”¹⁴ including data from “competitive providers” such as CLECs, cable operators and wireless providers.¹⁵ The Commission also properly ordered these competitive providers to furnish detailed information regarding their network facilities, collocation sites, and location-specific demand.¹⁶ AT&T strongly supports actions to ensure the Commission has a complete and robust record of the deployment of alternative dedicated access facilities.

The Commission, however, has not fully or adequately resolved the *analytical framework* that will be used to guide that empirical analysis and be used to evaluate the results.¹⁷ As the *Notice* recognizes, the most immediate goal of the proceeding is to develop administrable triggers based on readily observable facts that reasonably identify circumstances where *partial* deregulation of ILEC special access services is appropriate.¹⁸ Given this express goal, the Commission need only undertake a relatively straight-forward empirical analysis here. The proposed data collection should provide the Commission with information about the scope and location of competitors’ networks, and thus allow the Commission to observe where competitors have sunk investment in network facilities capable of serving special access customers . This in

¹⁴ *Notice* ¶ 20 (emphasis added).

¹⁵ *Id.* ¶ 21; *see also id.* ¶ 69 n.152 (“We agree with those commenters who state that the Commission’s analysis must take account of ... sources of intramodal and intermodal competition.”).

¹⁶ *Id.* ¶ 38.

¹⁷ *Id.* ¶¶ 72-79.

¹⁸ *See id.* ¶ 78 (noting “the importance of balancing the accuracy of our analysis with the need for administrative efficiency” and that the Commission intends to identify “proxies for special access competition, which could be employed going forward to evaluate petitions for pricing flexibility in a consistent, streamlined manner”).

turn will allow the Commission to determine how competitive deployment correlates with the Commission's existing triggers (or other easily observable marketplace facts) and, if necessary, modify the existing proxies or choose a different proxy.

Such an analysis flows directly from the theory of pricing flexibility. The Commission's pricing flexibility rules are not intended to determine whether complete deregulation is appropriate; they are merely an incremental measure *within* the context of dominant carrier regulation. The purpose of the pricing flexibility rules is to identify areas where ILECs may safely be given some measure of flexibility to meet competition by offering market-driven prices and entering into individualized contracts tailored to the needs of each special access customer, while still filing generally applicable tariffs.¹⁹ Even ILECs granted "full" pricing flexibility still remain subject to the tariffing obligation and to the "just and reasonable" and nondiscrimination requirements of sections 201 and 202 of the Communications Act, and these provisions can be enforced in complaint proceedings under section 208.

The goal of pricing flexibility has never been to wait until "perfect" competition existed everywhere; rather the rules recognize that substantial relief is "warranted" when competitors merely have a "significant market presence."²⁰ For these reasons, the D.C. Circuit has already

¹⁹ See, e.g., *WorldCom*, 238 F.3d at 460 (ILECs that have received Phase II relief must still file tariffs and are still subject to, among other things, tariff filing requirements that are "the centerpiece of . . . common carrier regulation.") (citation omitted). See also, e.g., *Pricing Flexibility Order* ¶ 151. This is consistent with the long-standing Commission practice granting pricing flexibility to legacy AT&T within dominant carrier regulation and later granting earlier forms of flexibility to ILECs based on more limited evidentiary showings. See, e.g., Report and Order and Notice of Proposed Rulemaking, *Expanded Interconnection with Local Tel. Co. Facilities*, 7 FCC Rcd. 7369, ¶ 179 n.411 (rel. Oct. 19, 1992); Second Report and Order, *Expanded Interconnection with Local Tel. Co. Facilities*, 8 FCC Rcd. 7374, ¶¶ 98-99, 115-17 (rel. Sept. 2, 1993); Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry, *Access Charge Reform Price Cap*, 11 FCC Rcd. 21354, ¶ 305 (rel. Dec. 24, 1996) ("*Access Reform Order*").

²⁰ *Pricing Flexibility Order* ¶ 142.

expressly rejected the argument that the pricing flexibility triggers would be unlawful merely because they were rough proxies that did not replicate a full nondominance (*i.e.*, market power) inquiry.²¹ To the extent that the Commission is proposing to undertake its “multi-faceted market analysis” because it may give insights as to where ILECs should be fully deregulated as non-dominant carriers, to fine-tune its dominant carrier regulation, or otherwise “gain a fulsome picture of competition in the special access market,”²² such an inquiry should not delay or otherwise displace the identification of administrable triggers that provide limited, partial deregulation of ILEC special access services.

Basic economic theory supports a regulatory framework that bases the level of regulation on the extent to which alternative providers have made sunk investment in network facilities capable of providing dedicated access services to customers served by the incumbent. Indeed, even proponents of special access regulation concede that such investment ensures that ILECs and new entrants will compete on price and other terms, because an incumbent has little hope of driving its competitors out of the market through exclusionary conduct.²³ As the Commission explained in 1999:

²¹ *WorldCom*, 238 F.3d at 459-61; *see also Pricing Flexibility Order* ¶ 152 (administrative burdens associated with nondominance test applied in *AT&T Nondominance Order* “are magnified when done on an MSA-by-MSA basis”).

²² *Notice* ¶ 74 nn.162, 166, ¶ 78.

²³ *See, e.g.*, Comments of Ad Hoc Telecomm. Users Comm., at 7 (Jan. 19, 2010) (“Ad Hoc 2009 PN Comments”) (the triggers would be appropriate if they identified “the presence of competitors providing special access services”); Comments of Level 3 Comm., LLC, at 5 (Jan. 19, 2010) (“Level 3 2009 PN Comments”) (admitting that “[t]he theory that competitive pressures can ensure that special access rates, terms and conditions are just and reasonable may be true” and disputing only that the current triggers fail to do that); Comments of NoChokePoints Coalition, at 17 (Jan. 19, 2010) (“NoChokePoints 2009 PN Comments”) (recognizing that the triggers are incorrect only insofar as that collocations are “not correlated with the number of competitive channel terminations” or “interoffice transport facilities”); Comments of Paetec Holdings, Inc., *et. al.*, at ii (Jan. 19, 2010) (“Paetec 2009 PN Comments”) (criticizing the triggers only insofar as they may not, according to Paetec, be “an accurate proxy for the kind of sunk

Once multiple rivals have entered the market and cannot be driven out, rules to prevent exclusionary pricing behavior are no longer necessary If a competitive LEC has made a substantial sunk investment in equipment, that equipment remains available and capable of providing service in competition with the incumbent, even if the incumbent succeeds in driving that competitor from the market. Another firm can buy the facilities at a price that reflects expected future earnings, and, as long as it can charge a price that covers average variable cost, will be able to compete with the incumbent LEC ... the presence of facilities-based competition with significant sunk investment makes exclusionary pricing behavior costly and highly unlikely to succeed.²⁴

The D.C. Circuit agreed with this reasoning.²⁵

As the Commission previously held, this presence of facilities-based competition also provides a sufficient basis to ensure that ILEC rates will be sufficiently constrained to allow some measure of pricing flexibility.²⁶ Where other carriers have deployed sunk networks with excess capacity, that can be operated at low marginal cost, and that can be incrementally expanded to nearby locations when business opportunities present themselves, ILEC special access prices will necessarily be “just and reasonable.” “Because low marginal costs provide incentives for firms to offer low prices, competitors with networks in place (or competitors, such as [fixed] wireless providers, who can otherwise offer services at relative low marginal cost) can provide an important constraint on LEC pricing.”²⁷ In this regard, special access customers are

investment by competitors sufficient to constrain ILEC special access prices for channel terminations and dedicated transport facilities”).

²⁴ *Pricing Flexibility Order* ¶ 80.

²⁵ *WorldCom*, 238 F.3d at 458-59 (“the presence of facilities-based competition with significant sunk investment makes exclusionary pricing behavior costly and highly unlikely to succeed,” because “that equipment remains available and capable of providing service in competition with the incumbent, even if the incumbent succeeds in driving that competitor from the market”). See also Declaration of Dennis W. Carlton and Hal S. Sider, at ¶ 59 (“Carlton-Sider 2009 PN Decl.”) (Exhibit A to Comments of AT&T Inc. (Jan. 19, 2010) (“AT&T 2009 PN Comments”)).

²⁶ *Pricing Flexibility Order* ¶¶ 142-43.

²⁷ Carlton-Sider 2009 PN Decl. ¶ 31; see also *id.* ¶ 33 (the Commission’s collocation triggers consistent “with the economic logic which stresses that sunk investment by entrants can act as a competitive constraint on the pricing of incumbent firms”).

“sophisticated purchasers of telecommunications services, fully capable of finding competitive alternatives where they exist and determining which competitor can best meet their needs.”²⁸ Accordingly, where there are competing facilities-based alternatives, customers will – and do – seek out and obtain the best combination of services and pricing to meet their individual needs, which ensures that no competitor can charge rates that fall outside the broad zone of “reasonableness.”²⁹

Price-constraining competition can still exist in an area even where competitors do not have connections from their transport networks to every single building in the area.³⁰ The *capability* of CLECs to serve those buildings is sufficient to constrain prices. For example, traditional CLECs deploy large fiber rings or other transport facilities and then make bids and offers to serve special access demand for customers in buildings located near their networks.³¹ Cable and fixed wireless providers likewise have facilities that readily can be used or extended to provide connections to additional customers.³² Notably, special access competitors can deploy (and earn a return on) direct connections after winning a customer’s business and thus do not

²⁸ *Pricing Flexibility Order* ¶ 155.

²⁹ See *Pricing Flexibility Order* ¶ 153 n.389 (explaining that “it is unnecessary to extend the efficiency incentives of price cap regulation to services offered on a ‘contract-type basis.’”) (quoting Second Report and Order, *Policy and Rules Concerning Rates for Dominant Carriers*, 5 FCC Rcd. 6786, ¶ 193 (rel. Oct. 4, 1990) (“*Price Cap Order*”)).

³⁰ See *Notice* ¶ 69 n.152 (“We agree with those commenters who state that the Commission’s analysis must take account of both actual and potential competition”); Carlton-Sider 2009 PN Decl. ¶¶ 28-30.

³¹ AT&T 2009 PN Comments at 41; Carlton-Sider 2009 PN Decl. ¶ 28.

³² AT&T 2009 PN Comments at 34-35; Carlton-Sider 2009 PN Decl. ¶¶ 45, 60-63.

need to assume the substantial risk of deploying ubiquitous connections first and trying to win the business later.³³

Although this phenomenon is often referred to as “potential” competition, it is, in fact, more accurate to call it actual competition – existing facilities-based competitors are actually competing in the marketplace for the right to build (what remain “potential”) direct connections to a location.³⁴ “Firms with facilities that can profitably be extended to serve a building are properly considered to be actual competitors to a LEC.”³⁵ The Department of Justice has also generally recognized that the ability of firms profitably to enter a market within two years “likely will deter an anticompetitive merger in its incipiency, or deter or counteract the competitive effects of concern,”³⁶ and has specifically applied that principle to find that special access competition from traditional CLECs constrains ILEC prices in buildings that are sufficiently near, but not necessarily already connected to, their competitive sunk network facilities.³⁷

³³ See, e.g., Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 18 FCC Rcd. 16978, ¶ 316 (rel. Aug. 21, 2003) (customers often “enter into long-term contracts committing to revenue streams and associated early termination charges that provide the ability for carriers to recover their substantial non-recurring ‘set-up’ or construction costs” of deploying facilities).

³⁴ See *WorldCom*, 238 F.3d at 458 (“the presence of substantial sunk investment, and the resulting potential for entry into the market, can limit anticompetitive behavior by LECs”) (citing *Pricing Flexibility Order* ¶ 80).

³⁵ Carlton-Sider 2009 PN Decl. ¶ 29.

³⁶ Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, § 3.0, available at http://www.justice.gov/atr/public/guidelines/horiz_book/30.html.

³⁷ See, e.g., Memorandum Opinion and Order, *AT&T Inc. and BellSouth Corp. Application for Transfer of Control*, 22 FCC Rcd. 5662, ¶¶ 41-42, 46 & nn.111-14 (rel. March 26, 2007) (describing and adopting “screens” employed by DOJ to determine whether a building could be served by alternative facilities, which recognize that competitors with facilities near a building can and do compete for customers in that building); see also *Notice* ¶ 78 n.173.

In light of these basic economic principles, the relevant empirical issues to be resolved are fairly narrow: is there a readily observable fact that can be used as a reasonable proxy for the deployment of sunk, alternative facilities. Proponents of special access regulation claim that the collocation-based triggers adopted by the Commission in 1999 have not functioned as reasonable proxies because they require collocation in only a fraction of the wire centers in an MSA, and permit partial deregulation of ILEC special access services in areas where there are either limited or no alternative dedicated access facilities.³⁸ But, as regulatory proponents themselves concede,³⁹ and as implicitly recognized in the *Pricing Flexibility Suspension Order*,⁴⁰ these are propositions that can be tested – and the empirical data that the Commission is gathering should allow it to do so.

That analysis may very well show that the Commission’s existing triggers are operating as intended – not as “perfect” proxies, but as reasonably good proxies for sunk network deployment. Certainly, as AT&T has shown, it cannot be disputed that there has been substantial deployment of alternative competitive facilities.⁴¹ And, contrary to the Commission’s speculation in the *Pricing Flexibility Suspension Order*,⁴² the existing data show that special

³⁸ See *supra* n.23; see also *Pricing Flexibility Suspension Order* ¶¶ 35-36.

³⁹ See, e.g., NoChokePoints 2009 PN Comments at 17 (arguing that the Commission should gather data from non-ILEC competitors on the scope of their networks, because “[b]y analyzing these data, the Commission will be able to determine the extent to which the presence of collocated facilities in an MSA correlates with the presence of competition for channel terminations and interoffice transport”).

⁴⁰ See e.g., *Pricing Flexibility Suspension Order* ¶¶ 7, 50, 52, 74-75, 81, 83 (noting lack of demand and competitive facility location data that could be used empirically to test accuracy of triggers).

⁴¹ AT&T 2009 PN Comments at 30-38, 47-48; Carlton-Sider 2009 PN Decl. ¶¶ 43-55; Comments of Verizon and Verizon Wireless, at 18-29 (Jan. 19, 2010) (“Verizon 2009 PN Comments”); Declaration of Michael D. Topper ¶¶ 26-34 (“Topper 2009 PN Decl.”) (Attachment A to Verizon 2009 PN Comments).

⁴² *Pricing Flexibility Suspension Order* ¶¶ 37-38.

access demand tends to be highly concentrated in the most urban portions of MSAs where competitors typically deploy alternative facilities and where at least some competitors have collocated in ILEC wire centers.⁴³

Indeed, a thorough empirical examination is likely to demonstrate that the Commission's existing collocation-based triggers are *under-inclusive*.⁴⁴ *First*, even traditional CLECs often bypass ILEC facilities completely and serve customers that are located in a wire center's service area without collocating facilities in that wire center.⁴⁵ That is a common situation when a CLEC has a network serving multiple adjacent wire center areas, but collocates in only one of them, or connects to its customers through carrier hotels.⁴⁶ *Second*, cable companies have long used their networks to serve small and medium sized businesses, and fixed wireless alternatives have developed broadly.⁴⁷ Both forms of intermodal competition have long been present in suburban and rural areas, and each has exploded now that it is apparent that billions of dollars in revenue is available from serving the needs of wireless and other communications service providers and business customers. The triggers do not account for this competition, because these providers rarely have a need to rely on ILEC collocations.

Testing and, if necessary, revising the existing triggers should be feasible once the Commission gathers information on the location of competitive facilities deployment and the

⁴³ See *id.*, Appendix D; see also *infra*, n.48.

⁴⁴ In addition, as AT&T previously explained, the Phase II triggers are set too high. AT&T 2009 PN Comments at 37.

⁴⁵ AT&T 2009 PN Comments at 29-30.

⁴⁶ See *Pricing Flexibility Order* ¶ 95 (collocation trigger understates true level of deployment because it does not capture CLEC fiber that bypasses ILEC facilities); *WorldCom*, 238 F.3d at 462 (same). Unfortunately, the draft data request would also fail to capture this deployment, as the definition of collocation excludes carrier hotels. See *Notice*, Appendix A, Part I.

⁴⁷ *Id.* at 30-35.

location of DSn-level special access demand. To the extent that an empirical analysis shows that the existing triggers are so under- or over-inclusive that they cannot be used as a reasonable, rough proxy for competitive investment, then the Commission should use the data it is gathering to determine whether a better – readily observable – proxy exists for predicting whether there will be multiple, facilities-based competition in a region. Alternatively, to the extent the empirical analysis suggests that special access demand is not, as believed, relatively concentrated and that there are significant instances where pricing flexibility has been granted in portions of an MSA where there is meaningful levels of demand but not alternative supply, the Commission can use the data to explore whether to adopt triggers that have more limited geographic scope.⁴⁸

II. IF THE COMMISSION IS TO UNDERTAKE A “MULTI-FACETED” REGRESSION ANALYSIS, IT MUST FOLLOW SOUND ECONOMETRIC PRACTICES AND ENSURE FULL TRANSPARENCY.

Rather than conducting the manageable inquiry described above, the Commission proposes to undertake a vastly more complex “multi-faceted market analysis” comprised of “panel regressions designed to determine how the intensity of competition (or lack thereof),

⁴⁸ Based upon existing data, such concerns about geographically over-expansive relief appear to be overstated. Appendix D to the *Pricing Flexibility Suspension Order* lists data on each MSA in which the Commission has granted pricing flexibility for channel terminations. In the 123 MSAs (about a third or all MSAs) where the Commission has granted Phase II relief, the collocation wire centers that justified the MSA-wide relief accounted for, on average, more than 93 percent of *all* of the ILEC’s special access revenue in that entire MSA. In nearly a third of those MSAs, the collocation wire centers accounted for 97 percent or more of revenue; in nearly 20 cases, they accounted for fully 100 percent of revenue; and in no case did they account for less than 85 percent of revenue (the minimum under the rules for revenue-based Phase II channel termination relief). Any assumption that MSA-wide relief creates significant opportunities for anticompetitive prices and terms in areas of the MSA where competitors have not collocated or otherwise deployed facilities is thus demonstrably false – the wire centers without collocations, not surprisingly, are the ones without any significant – and in many cases, without *any* – special access demand, *e.g.*, predominantly residential, rural, and uninhabited areas. Moreover, reducing the scope of relief would necessarily, and perhaps dramatically, increase the administrative burden involved in processing requests for pricing flexibility relief, and, therefore, the Commission should narrow pricing flexibility only where there are compelling reasons for such a change.

whether actual or potential, affects prices, controlling for all other factors that affect prices.”⁴⁹ Such an analysis would be unnecessary, costly, and unlikely in the end to help the Commission design an administrable test for pricing flexibility. By focusing on the “sources of market power” and the impact of various marketplace factors on location-specific special access “prices,” the Commission would be conducting, in essence, a full dominance/non-dominance inquiry. Indeed, the proposed nationwide panel regressions would constitute a far more granular and detailed inquiry than the Commission has ever conducted in prior non-dominance proceedings. Such an analysis would significantly expand and complicate the scope of this proceeding.⁵⁰

Indeed, there are serious questions about whether the Commission can design and run the regression it proposes in an econometrically defensible manner. The law requires analytical rigor: courts often hold that methodologically flawed regression analyses are not even admissible under the Rules of Evidence,⁵¹ and certainly flawed regressions would not hold enough probative value to support new regulations under the Administrative Procedure Act.⁵² These legal standards are of particular importance here, because the proposed regressions face many practical and methodological challenges that may prove insurmountable. At a minimum, if the Commission follows the path proposed in the *Notice*, it is absolutely critical – as a matter of both sound econometric practice and administrative law – that the Commission maintain a

⁴⁹ *Id.* ¶ 68.

⁵⁰ *Notice* ¶ 74 n.166 (acknowledging that the one-time multi-faceted analysis “could indicate that, in some instances, a finding of non-dominance is appropriate”).

⁵¹ See, e.g., *EEOC v. Sears, Roebuck & Co.*, 839 F.2d 302 (7th Cir. 1988); *In re Live Concert Antitrust Litig.*, 863 F. Supp. 2d 966, 978-979 (C.D. Cal. 2012); *In re REMEC Inc. Sec. Litig.*, 702 F. Supp. 2d 1202, 1272 (S.D. Cal. 2010); see also *Smith v. Virginia Commonwealth Univ.*, 84 F.3d 672 (4th Cir. 1996).

⁵² *Bazemore v. Friday*, 478 U.S. 385, 400 (1986); cf. *Csicseri v. Bowsher*, 862 F. Supp. 547, 565, 572 (D.D.C. 1994).

transparent process that precludes any possibility of improper “data mining” and that permits the parties to run their own regressions to test the robustness of the Commission’s results.

A. The Proposed Panel Regressions Will Vastly Increase The Complexity Of The Commission’s Analysis And Pose Many Difficult (And Possibly Insurmountable) Methodological Issues.

As explained below, and in greater detail in the accompanying declaration of Professor Igal Hendel and Dr. Mark Israel, it is far from clear whether an econometrically sound regression can be developed given the nature of the marketplace and relevant data. Moreover, even if the Commission is able accurately to model certain marketplace factors’ effects on prices, it is not at all clear that such a regression would yield any sort of administrable test that the Commission could use going forward.

Data Issues. Even before it runs any regressions, the Commission will face an enormous (and possibly infeasible) task in simply assembling a valid and useable data set. The proposed panel regression analysis will attempt to analyze the effect of location-specific factors on prices throughout the country,⁵³ and the Commission intends to account for all factors that “could reasonably be expected to affect prices and competitive investment.”⁵⁴ Such a regression will likely require millions of data points from scores of companies. Accordingly, the Commission has ordered carriers to provide, *inter alia*, detailed customer location data, the bandwidth provided to each location, information regarding RFPs, detailed billing information (by circuit and rate element), information regarding rate adjustments, and revenues by bandwidth.⁵⁵

⁵³ See Notice ¶ 24 (“With respect to a sample of geographic regions, it is very difficult to design a representative sample without coming close to covering the entire country. . .”).

⁵⁴ Notice ¶ 67.

⁵⁵ See generally Notice, Appendix A.

Given the breadth and nature of the data sought by the Commission, however, the Commission will almost certainly have to engage in a massive data reconciliation project.⁵⁶ The importance of performing this step openly and correctly cannot be overstated: as Professor Hendel and Dr. Israel explain, the measures taken to “clean” the data, if done improperly, can corrupt the results of the modeling.⁵⁷ In this case, there are likely to be thousands of anomalies and inconsistencies. Billing records are “notoriously ‘messy,’” and each responding company will likely maintain the data sought by the Commission in different and incompatible formats that must somehow be made uniform.⁵⁸ Pricing data are also likely to contain outliers (unusually high or low prices) or unexplained gaps (missing values), and the Commission must explain how it will handle these situations.⁵⁹ The need for reconciliations and processing of this sort, in a database encompassing millions of records, is potentially endless.

The Commission’s proposed dependent variable – price – poses an even more intractable data reconciliation problem, because ILECs and CLECs use fundamentally different rate elements that are not easily comparable.⁶⁰ ILEC rate structures are constrained by the Commission’s Part 61 and Part 69 requirements, while CLECs face no such strictures. CLECs often simply charge a single price for a dedicated circuit of a particular bandwidth, whereas ILECs typically charge separately for transport and channel terminations (and include mileage charges for transport as well). Indeed, tw telecom has already complained in response to the data

⁵⁶ Igal Hendel and Mark A. Israel, *Econometric Principles That Should Guide The Commission’s Analysis of Competition for Special Access Service*, ¶¶ 17, 44-47 (Feb. 11, 2013) (“Hendel-Israel Decl.”) (Attachment A).

⁵⁷ *Id.* ¶¶ 46-47.

⁵⁸ *Id.* ¶ 44.

⁵⁹ *Id.*

⁶⁰ *Id.* ¶ 57.

request that the Commission should “account for the fact that competitive providers of special access do not bill separately for the same special access rate elements as incumbent LECs do.”⁶¹ Any Commission attempt to account for these differences is likely to be arbitrary, and if the Commission tries to retrofit CLEC price data to conform to the rate structures imposed on incumbent LECs, such data manipulation could contaminate the results of the model. Direct comparisons between ILEC and CLEC rate data may be particularly problematic in areas in which the ILEC has obtained Phase II relief for transport but not for channel terminations.⁶² In addition, Ethernet services are priced on a completely different basis – with a recurring port charge and a recurring charge for committed throughput, and with further variations for service quality levels – that will make comparisons that much more difficult.⁶³

It should be noted that shortcomings or compromises in the data set would pose a much bigger issue for the accuracy of the proposed regression analysis than for the simpler investigation of proxies for sunk investment.⁶⁴ Even a suboptimal data set that understates competitive deployment to a certain degree could still provide enough information to allow the Commission to re-establish observable, administrable and reasonably accurate proxies for competitive deployment. The panel regressions, however, depend on millions of granular observations and seek to model much more subtle marketplace changes. If there are significant gaps, inconsistencies, or omissions in the data, or if the Commission has to make a series of

⁶¹ Letter from Thomas Jones (tw telecom) to Marlene H. Dortch (FCC), at 1 (Jan. 10, 2013).

⁶² Hendel-Israel Decl. ¶ 58.

⁶³ *Id.* ¶ 71.

⁶⁴ *Id.* ¶¶ 17, 76-77.

compromises in how it constructs the dataset, such complications could negate the explanatory power of the model, thus rendering the effort pointless.⁶⁵

Model specification. As Professor Hendel and Dr. Israel explain, sound econometric practice requires that the Commission publish the specifications of its regression model *before* it runs the model, not after.⁶⁶ It would be clearly inappropriate as a matter of econometric practice for the Commission to take the data behind closed doors, run various iterations of the model until it finds a specification that it likes, and then emerge with a “finished product” on which it is willing to receive comment. It is well recognized that the econometric model should be specified in advance.⁶⁷ In contrast, a process in which a model is tested, generates no meaningful results, and is repeatedly adjusted until “statistically significant” results are achieved is a misuse of regression analysis. In any such “data mining” exercise, it is highly likely that the supposed statistically significant results are spurious.⁶⁸

Although, as explained below, these concerns are one of many reasons why the law requires transparency in the Commission’s process, this is also an important issue of econometric methodology. Regression analysis is a method for testing *a priori* hypotheses that are grounded in sound economic theory. In order to make any causal inference and avoid “false positives,” the regression analysis must be based on “economic theory and knowledge of the industry.”⁶⁹ The *Notice*, however, is extremely vague about what specifications the Commission intends to test, and indeed, the Commission says that “the precise form of econometric modeling we conduct

⁶⁵ See *id.* ¶ 47 (“Failure to adhere to appropriate data processing principles means that sound conclusions cannot be drawn from any results derived from the data.”).

⁶⁶ *Id.* ¶¶ 17, 41-43.

⁶⁷ *Id.* ¶¶ 35-43.

⁶⁸ *Id.* ¶ 43.

⁶⁹ *Id.* ¶¶ 41-43.

will be dependent, in large part, on the nature and the quality of the data produced in response to the Order.”⁷⁰ Statements such as this come dangerously close to suggesting that the Commission is going to see what data it has and *then* decide what question to ask. Such an approach would be unscientific and the results would be unreliable.⁷¹ Sound practice requires the Commission to provide the model specifications in advance, and to the extent that the Commission runs multiple regressions, it should disclose and describe any significant iterations in the tested regressions and the reasons for the changes.⁷²

Use of price as a dependent variable. The Commission’s apparent intention to use price as the dependent variable in the proposed regression analysis raises another significant and potentially insurmountable concern.⁷³ Wholly apart from the difficulties in creating an apples-to-apples comparison of special access prices, as described above, “prices” for special access services cannot be determined in any way that would lend itself to the type of regression analysis the Commission proposes to perform.⁷⁴ First, the Commission’s proposal is to model special access prices as a function of various location-specific marketplace factors, such as number of competitors in the area. But there are few location-specific special access prices in the marketplace.⁷⁵ Special access tariffs and contracts routinely cover multiple locations and provide uniform prices, discounts, and credits.⁷⁶ What is negotiated is not the individual price or discount at each specific location, but the overall impact of the fixed percentage or lump sum

⁷⁰ Notice ¶ 68.

⁷¹ Hendel-Israel Decl. ¶¶ 17, 41, 43.

⁷² *Id.* ¶¶ 17, 38, 41, 43.

⁷³ Notice ¶ 68.

⁷⁴ Hendel-Israel Decl. ¶¶ 50-61.

⁷⁵ *Id.* ¶¶ 30-32.

⁷⁶ *Id.* ¶¶ 30-31.

credits that apply to the contract as a whole. In such circumstances, there are no location-specific prices to compare and it may be arbitrary to allocate credits to assign prices to the individual components of the “bundled” offering.⁷⁷ Second, and relatedly, special access contracts may include multiple services (including unregulated services) in which DSn-level special access service is just one of many components.⁷⁸

Indeed, in some contracts, the parties have negotiated a year-end credit (*i.e.*, a rebate) to the customer based on its aggregate “spend” on all of the services covered by the agreement, which can include DSn-level special access services subject to varying levels of price regulation (*e.g.*, Phase I, Phase II, or no flexibility) as well as OCn-level special access, packet-based access services and even non-access services like video services.⁷⁹ Assume, for example, that a customer has an agreement providing for a 10 percent credit when it purchases a total of \$100 million in covered services in a calendar year. That customer would receive a \$10 million credit if it achieves that benchmark, regardless of whether the \$100 million in total spend is achieved primarily – or even entirely – through the purchase of pricing flexibility services. It is difficult to conceive of a non-arbitrary way to allocate the impact of the credit to adjust the price of individual special access circuits at widely varying locations.⁸⁰

Omitted Variables. It is well established that omitted variables can lead to biased empirical estimates, particularly if the omitted variables are correlated with other explanatory variables in the model.⁸¹ Here, certain factors that impact price – a prime example here being the

⁷⁷ *Id.* ¶¶ 17, 32, 53-54.

⁷⁸ *Id.* ¶¶ 32, 56-58.

⁷⁹ *Id.* ¶¶ 32, 53, 56.

⁸⁰ *Id.* ¶¶ 17, 52-55, 57-58.

⁸¹ *Id.* ¶ 17, 70.

quality of the service – may be difficult or impossible to observe and, indeed, will likely vary across the sample in ways that correlate with market structure.⁸²

Dedicated access is a service, not a commodity, and this service is provided at differing levels of quality.⁸³ A “high” price for special access service provided pursuant to performance guarantees may, in economic terms, be lower than a best efforts service that is cheaper in nominal terms. These quality differences must be accounted for in any price regression, but it may be particularly hard to measure such differences. If quality is not easily observable, the regression analysis may underestimate the impact of competition on price because prices will reflect higher quality levels.⁸⁴

Lack of Independence Between Price And Market Structure Variables. Another serious issue with the Commission’s proposed panel regression is the fact that it intends to model price as a function of variables that are almost certainly not independent of price – in particular, market structure variables such as the number of competitors.⁸⁵ Price and market structure are jointly determined by a host of underlying marketplace factors impacting cost and demand, such as business density and topography.⁸⁶ There is a substantial risk that any attempt by the Commission to model price as a function of endogenous factors like market structure will produce unreliable and spurious correlations.⁸⁷

The fact that price depends, in the end, on a host of difficult-to-observe underlying variables adds additional and substantial complications that enormously increase the complexity

⁸² *Id.* ¶ 71.

⁸³ *Id.* ¶¶ 33, 71.

⁸⁴ *Id.* ¶ 71.

⁸⁵ *Notice* ¶ 68.

⁸⁶ Hendel-Israel Decl. ¶¶ 66-67.

⁸⁷ *Id.* ¶¶ 65-69.

of actually designing and running the model. Indeed, most of these independent variables could not be derived directly from the information being submitted by the parties.⁸⁸ To the extent that these variables cannot be observed, measured or otherwise controlled for, “there is a significant risk that the measured effect of market structure on price will reflect endogeneity bias.”⁸⁹

Time series. The *Notice* indicates that the Commission intends to undertake a “time” series analysis using 2010 and 2012 data.⁹⁰ The Commission appears to be taking this approach because of the difficulties in comparing results across geographic areas. There is substantial heterogeneity across geographic areas, and a substantial risk that any regression analysis that combines data from different geographic areas will generate incorrect results because the regression fails to account for important variables relevant to competition in each of those areas.⁹¹ A pooled time series, cross-section “panel” regression seeks to avoid these problems by assessing the impact of market structure on prices by keeping unobservable factors constant.⁹²

Unfortunately, the panel regressions proposed in the *Notice* appear unlikely to address these concerns.⁹³ First, the fact that the regression covers only two points in time that are relatively close to each other will likely limit the usefulness of the study.⁹⁴ In many cases, there will be no relevant changes to observe.⁹⁵ Most special access prices are established in three-to-

⁸⁸ *Id.* ¶ 67; *see also id.* ¶¶ 70-71.

⁸⁹ *Id.* ¶¶ 67, 69.

⁹⁰ *Notice* ¶¶ 27-29.

⁹¹ Hendel-Israel Decl. ¶¶ 48, 50, 51, 55, 63.

⁹² *Id.* ¶ 69.

⁹³ *Id.* ¶¶ 72-75. The proposed panel approach also seems unlikely to “overcome the concerns about endogeneity since changes in the number of actual and potential competitors over time are also driven by changes in market conditions.” *Id.* ¶ 69.

⁹⁴ *Id.*

⁹⁵ *Id.*

five year contracts (and in some cases even longer contracts), and if a contract straddles both 2010 and 2012, there is no pricing change to test.⁹⁶ For similar reasons, there will often be a mismatch between the marketplace factors of interest (which are occurring in 2010 and 2012) and the observed prices (which may have been established in commercial negotiations that occurred years earlier).⁹⁷ For these and other reasons that Professor Hendel and Dr. Israel detail, there may be no meaningful correlations between market structure and observed prices, and the model's explanatory power thus may be very limited or non-existent.

More fundamentally, even if the Commission could make some valid observations about changes between 2010 and 2012, the Commission cannot assume that such observations would be a reliable guide for future regulation. To be relevant, the Commission's "one-time" regression must be indicative of how "market structure" will influence prices in the future. Stated differently, the panel regression provides useful results only to the extent that the other, unobservable factors are not changing.⁹⁸ The special access marketplace, however, is undergoing *rapid* and fundamental change. Between 2010 and 2012, some of the largest purchasers of special access services – including wireless carriers – began systematically to discontinue purchasing TDM-based DS_n service and instead buy packet-switched Ethernet services.⁹⁹ There has thus been a substantial decrease in demand for DS_n-level service for these customers, which could explain pricing changes even if competition remains constant.¹⁰⁰ More broadly, the decline in TDM-based DS_n-level special access services has become irreversible,

⁹⁶ *Id.* ¶¶ 59-60.

⁹⁷ *Id.*

⁹⁸ *Id.* ¶¶ 69, 72.

⁹⁹ *Id.* ¶ 73.

¹⁰⁰ *Id.* ¶¶ 73-74.

and the fact that these fundamental technology-driven changes will continue to transform the special access marketplace undermines the Commission’s ability to use the regressions, which focus *historically* on 2010 and 2012, as a justification for forward-looking rules.¹⁰¹

Sample selection bias. Although ILECs have been granted pricing flexibility in many MSAs, there still remain significant areas of the country where they have not been granted full pricing flexibility or, for that matter, any pricing flexibility at all. For example, no pricing flexibility has been granted in 133 MSAs and ILEC channel terminations remain subject to price caps even in major hubs of competitive rivalry like Chicago and New York.¹⁰² To assess the effect of competition on prices, as the *Notice* proposes, “it makes most sense to evaluate products and geographic areas where firms have substantial flexibility to set prices in response to competitive conditions, not in areas subject to price regulation.”¹⁰³ That is because regulation can affect the prices that result from a particular market structure – indeed, that is the point of the regulation.¹⁰⁴

This creates a substantial and potentially fatal econometric complication for the type of panel regression proposed by the Commission because the set of markets that have received pricing flexibility is not a random sample.¹⁰⁵ Areas where the triggers for pricing flexibility have been satisfied may have different local market conditions (like relative concentration of demand) than areas that have not qualified for pricing flexibility.¹⁰⁶ Unless these relevant differences are

¹⁰¹ *Id.* ¶ 75.

¹⁰² *Id.* ¶ 27 & Table 2.

¹⁰³ *Id.* ¶ 62.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* ¶ 64.

¹⁰⁶ *Id.*

fully accounted for in the regression specification, this will produce a biased estimate.¹⁰⁷ The *Notice* itself recognizes the problems with sampling,¹⁰⁸ but provides no indication as to how the Commission can avoid sampling given the existence of rate regulation in many MSAs.

Difficulty of using the model to derive an administrable test. The approach outlined in the *Notice* appears unlikely to yield any results that would be useful in fashioning a new pricing flexibility test.¹⁰⁹ As set forth in the *Notice*, the Commission’s “one time” and “multi-faceted” regression model will attempt to correlate prices with all of the relevant market structure variables that “could reasonably be expected to affect prices and competitive investment.”¹¹⁰ Even to the extent that the Commission is able to obtain accurate and robust data for all of the variables that would need to be considered in its proposed regression, and even if the Commission is able to observe a statistically significant relationship between the market structure variables and price, and even if the Commission could be confident the fundamental relationships between price and market structure would remain unchanged going forward – all of which, as explained above, appears unlikely – the relevant market structure variables that ultimately determine price inevitably will change going forward. For example, competitive carriers continue to deploy fiber in more locations, expanding the scope of the buildings to which they can provide special access services. And the location and intensity of demand will fluctuate as the economy as a whole, particular sectors of the economy, and even individual businesses expand or contract.

¹⁰⁷ *Id.*

¹⁰⁸ *Notice* ¶ 24.

¹⁰⁹ Hendel-Israel Decl. ¶¶ 76-80.

¹¹⁰ *Notice* ¶ 67.

These and other market structure variables that the Commission intends to use in its regression, however, are not readily observable.¹¹¹ The Commission is obtaining the necessary information to run its “one time” regression only as the result of an extraordinary, confidential data-gathering exercise—an exercise that cannot be repeated each time a carrier would seek pricing flexibility.¹¹²

Type I/Type II Error. The Commission must also recognize that there are asymmetric error costs here. If the Commission allows an ILEC to charge rates that could be said to be above competitive levels, there is a strong likelihood that the market will eventually correct for that. High prices will attract entry that will compete away excessive profits. Further, under the Commission’s pricing flexibility rules, customers remain free to file section 208 complaints on the grounds that an ILEC’s prices are unjust and unreasonable.

On the other hand, if the proposed regression results were used by the Commission to set prices too low, there is no ready market mechanism to correct that. Such artificially “low” prices not only would deter incumbents from investing to upgrade their networks, but they would also undermine investment by CLECs, because they would have to compete with prices lower than would prevail in a competitive market.

B. Both The Law And Sound Econometric Practice Require Maximum Transparency.

If the Commission decides to conduct the proposed panel regressions, it is absolutely critical that the Commission maintain an open and transparent process at each and every step of its analysis. The Administrative Procedure Act (“APA”), the Commission’s guidelines implementing the Data Quality Act, Executive Orders, and sound econometric practice all

¹¹¹ Hendel-Israel Decl. ¶ 79.

¹¹² *Id.*

require the Commission to give outside counsel and qualified outside economists that agree to appropriate protective order and confidentiality restrictions access to the data and the Commission's process of data reconciliation, and to provide the specifications of its regressions in advance, and to provide access to all iterations of its regressions.

First, the APA clearly prohibits the Commission from performing its analysis in a black box. Courts have repeatedly held that Section 4(b) of the APA, 5 U.S.C. § 553, which governs rulemakings, requires agencies to disclose “at least the most critical factual material that is used to support the agency’s position on review” in order to expose this material “to refutation,” which includes both “the ‘technical studies *and data*’ upon which the agency relies.”¹¹³ Indeed, as the D.C. Circuit has held, “[i]t is not consonant with the purpose of a rule-making proceeding to promulgate rules on the basis of inadequate data, or on data that, [to a] critical degree, is known only to the agency.”¹¹⁴

These standards would prohibit the Commission from assembling its dataset in secret or engaging in “data mining” behind closed doors by changing the specifications and running different models until it found a regression it liked. For example, in *American Radio Relay League v. FCC*, the Commission staff produced “five scientific studies of empirical data gathered from field tests.”¹¹⁵ The Commission placed only redacted versions of those studies in the record, and attempted to justify its approach by disclaiming reliance on the redacted portions.

¹¹³ *Chamber of Commerce*, 443 F.3d at 899, 901 (emphasis added) (quoting *Solite Corp. v. EPA*, 952 F.2d 473, 484 (D.C. Cir. 1991) and *Ass’n of Data Processing Orgs., Inc. v. Bd. of Governors of Fed. Reserve Sys.*, 745 F.2d 677, 684 (D.C. Cir. 1984)); see also *id.* (“By requiring the ‘most critical factual material’ used by the agency [to] be subjected to informed comment, the APA provides a procedural device to ensure that agency regulations are tested through exposure to public comment, to afforded affected parties an opportunity to present comment and evidence to support their positions, and thereby to enhance the quality of judicial review”).

¹¹⁴ *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375, 393 (D.C. Cir. 1973).

¹¹⁵ *Am. Radio Relay League v. FCC*, 524 F.3d 227, 237 (D.C. Cir. 2008).

Petitioners argued that, by denying access to such information completely, they were denied the opportunity to challenge the Commission’s conclusions. The court agreed, explaining that “the Commission can point to no authority allowing it to rely on the studies in a rulemaking but hide from the public parts of the studies that may contain contrary evidence, inconvenient qualifications, or relevant explanations of the methodology employed.”¹¹⁶

The Data Quality Act¹¹⁷ also requires the development of standards to ensure the quality of governmental information, and the Commission has implemented guidelines “to ensure and maximize the quality, objectivity, utility, and integrity of specific types of information it disseminates.”¹¹⁸ Any statistical analysis employed by the Commission must be based on “sound statistical and research methods” and supporting data “should have full, unbiased, reliable, accurate, transparent documentation”¹¹⁹ – *i.e.*, the model and data should be provided “*in a way that it would be possible for an independent reanalysis to occur.*”¹²⁰ The Commission is obligated to address any concerns raised by commenters about the “quality, objectivity, utility and integrity” of statistical information in the course of any rulemaking proceeding.¹²¹ And, of course, in order for the public to be able to offer meaningful comments, the APA requires their counsel and experts be given (subject to appropriate confidentiality protections) access to the relevant data and regression analyses considered by the Commission.

¹¹⁶ *Id.* at 239.

¹¹⁷ Treasury and Government Appropriations Act for Fiscal Year 2001, Pub. L. No. 106-554, § 515, 114 Stat. 2763, 2763A-153 (2000), *reprinted at* 44 U.S.C.A. § 3516 Historical and Statutory Notes.

¹¹⁸ Information Quality Guidelines, *Implementation of Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Pursuant to Section 515 of Public Law No. 105-554*, 17 FCC Rcd. 19890, Appendix A, Part I, ¶ 1 (rel. Oct. 8, 2002).

¹¹⁹ *Id.*, Appendix A, Part II, ¶ 11.

¹²⁰ *Id.*, Appendix A, Part II, ¶ 14 (emphasis added).

¹²¹ *Id.*, Appendix A, Part IV, ¶ 1.b.

In 2011, President Obama made an even greater commitment to full transparency in Executive Order 13579 – a commitment that Chairman Genachowski stated that the agency “welcomed.”¹²² Executive Order 13579 broadly mandated that the Commission and other independent regulatory agencies ensure meaningful public participation in rulemaking proceedings.¹²³ Among many specific directions, the President required the Commission to provide “an opportunity for public comment on all pertinent parts of the rulemaking docket, including relevant scientific and technical findings.”¹²⁴ The purpose of this requirement is to “foster better and more informed agency decisions” and thus an agency should provide the opportunity for comment on relevant scientific and technical findings “before decisions are actually made.”¹²⁵

Executive Order 13579 also directs agencies to follow prevailing scientific practices to “ensure the objectivity of any scientific and technological information and processes used to support the agency’s regulatory actions.”¹²⁶ Here, established econometric practices require full transparency.¹²⁷ Sound econometric practices require the Commission to provide (again, subject to appropriate protective order restrictions) useable access both to the “raw” data and the data set

¹²² FCC Press Release, Statement from FCC Chairman Julius Genachowski on the Executive Order on Regulatory Reform and Independent Agencies (July 11, 2011), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-308340A1.pdf.

¹²³ Exec. Order No. 13579, 76 Fed. Reg. 41585 (July 11, 2011) (making Exec. Order No. 13563 (Jan. 18, 2011) applicable to independent regulatory agencies).

¹²⁴ Exec. Order No. 13563, 76 Fed. Reg. 3821, § 2 (Jan. 18, 2011).

¹²⁵ Cass R. Sunstein, Memorandum for the Heads of Independent Regulatory Agencies, *Executive Order 13579, “Regulation and Independent Regulatory Agencies”*, at 2 (July 22, 2011), available at <http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-28.pdf> (emphasis added).

¹²⁶ Exec. Order No. 13563, 76 Fed. Reg. at § 5.

¹²⁷ Hendel-Israel Decl. ¶¶ 17, 35-40.

it ultimately determines it will use.¹²⁸ Such access is essential to being able to determine whether appropriate adjustments were made to the data and to verify and test any regression analysis adopted by the Commission (as well as potentially identify superior alternatives).¹²⁹

The Commission should also provide commenters with any regression specification it tests and the results of that analysis.¹³⁰ As noted, it is an abuse to engage in “stepwise regressions” or “data mining,” where successive specifications are employed strictly in a quest for “statistical significance.” The extent to which the Commission undertakes iterative regressions, no matter what the results and regardless of whether the Commission purports to ultimately rely on the regression, is thus highly relevant to assessing the ultimate validity of any regression that the Commission might rely upon.¹³¹

In short, the law requires that the Commission’s “multi-faceted” regression be subject to effective “refutation” prior to the finalization of any rule or policy based on that analysis.¹³² That requires: (i) subject to appropriate confidentiality requirements, providing electronic access to the raw data to outside counsel and outside economists, including both the data submitted by industry in response to data requests and any Commission or third party data that may be used in the regression analyses (*e.g.*, business density, population, wage, income etc.); (ii) ensuring complete transparency as to any data processing that may take place, including any supplemental data requests, efforts to audit or test completeness/accuracy, or removal of “outliers”; (iii) specifying and providing full access to the subset/processed data the Commission uses in its

¹²⁸ *Id.* ¶ 38.

¹²⁹ *Id.* ¶¶ 37-39.

¹³⁰ *Id.* ¶¶ 38-39.

¹³¹ *Id.*

¹³² *Chamber of Commerce*, 443 F.3d at 899, 901.

regression, to the extent it does not use the full, raw population; and (iv) providing a complete specification of the initial regression model and releasing to outside counsel and experts the results of that initial regression and any subsequent runs by the Commission, including any stepwise regression analyses. Further, it would be contrary to fundamental due process, not to mention the APA and the President's recent Executive Order, if commenters were not allowed sufficient time to examine and verify the Commission's analysis and develop alternative approaches.

III. THERE IS NO BASIS IN THE RECORD FOR ADDITIONAL REGULATION OF SPECIAL ACCESS TERMS AND CONDITIONS.

The *Notice* seeks comment on allegations by a handful of competitors that the volume- and term-based discounts and other pro-competitive contractual terms and conditions offered by ILECs are *per se* anticompetitive. These competitors have long asserted that such offers allow ILECs to “lock in” demand for special access services, thereby deterring competitive entry and expansion. As AT&T and others have repeatedly demonstrated, however, these broad attacks on volume and term discounts – arrangements that the complaining competitors themselves commonly use – are not only contrary to basic economic and marketplace evidence, but are foreclosed by controlling legal precedent.

The Commission and federal courts have long held that discount plans foster competition and benefit the public in the provision of private line and special access services. The Commission has recognized “both volume and term discounts as generally legitimate means of pricing special access facilities so as to encourage the efficiencies associated with larger traffic volumes and the certainty associated with longer-term relationships.”¹³³ Likewise, the D.C.

¹³³ Fourth Memorandum Opinion and Order On Reconsideration, *Transport Rate Structure and Pricing*, 10 FCC Rcd. 12979, ¶ 13 (rel. Sept. 22, 1995) (*citing* Report and Order and Notice of Proposed Rulemaking, *Expanded Interconnection with Local Telephone Company Facilities*, 7

Circuit has held that these types of discounts are “most naturally viewed as a bargain containing terms that both benefit and burden its subscribers,” and it has admonished the Commission that complaints about the terms of such plans must be measured against the “critical fact” that ILECs have “no obligation to offer a discount plan at all” and thus that such plans, on their face, offer a benefit to consumers.¹³⁴

Economic testimony and marketplace evidence likewise establish that the special access volume and term discounts offered by ILECs are legitimate pro-competitive responses to competition.¹³⁵ Discounts are not anticompetitive, but are commonplace in competitive markets.¹³⁶ Responses to the Commission’s prior data requests show that the CLECs themselves offer volume and term discounts when they sell DS1, DS3 and Ethernet services (often with more stringent early termination and shortfall penalties than imposed by ILECs).¹³⁷ Customers that subscribe to these plans are typically large, sophisticated purchasers of telecommunications services that *negotiated* or otherwise voluntarily chose the offers following intense competitive bidding in which CLECs and others have made competing offers for all or some of the

FCC Rcd. 7369, ¶ 199 (rel. Oct. 19, 1992)); *see also Access Reform Order* ¶ 187 (volume and term “discounts should be permitted . . . because they encourage efficiency and full competition”); Report and Order, *Private Line Rate Structure and Volume Discount Practices*, 97 F.C.C. 2d 923, ¶ 40 (rel. April 24, 1984).

¹³⁴ *BellSouth Telecomm., Inc. v. FCC*, 469 F.3d 1052, 1057, 1060 (D.C. Cir. 2006).

¹³⁵ *See, e.g.*, Reply Declaration of Dennis W. Carlton, Allan L. Shampine, and Hal S. Sider, at ¶¶ 75-83 (“Carlton-Shampine-Sider 2009 PN Reply Decl.”) (attached to AT&T Reply Comments (Feb. 24, 2010) (“AT&T 2009 PN Reply”)); Carlton-Sider 2009 PN Decl. ¶¶ 87-99.

¹³⁶ Topper 2009 PN Decl. ¶¶ 62-67; Carlton-Sider 2009 PN Decl. ¶ 90 (“Volume, term and loyalty discounts are prevalent in many industries”); *see also, e.g.*, AT&T 2009 PN Comments at 77-78 (describing many competitive industries where term and volume discounts are commonplace).

¹³⁷ *See, e.g.*, Letter from Randall W. Sifers (XO Communications) to Marlene H. Dortch (FCC), WC Docket No. 05-25, attachment at 2 (Dec. 5, 2011) (public version of XO’s response to the First Voluntary Data Request) (XO offers DS1, DS3 and Ethernet services “on two or three [year] terms” and “higher volume sales will often include a discount from a single service sale”).

customer's business.¹³⁸ Many customers that choose plans with volume commitments commit only a fraction of their volumes, thus leaving a significant amount of their business that can readily be moved to competitors.¹³⁹

ILEC volume and term discounts obviously have not foreclosed competitive entry or expansion, because CLECs, cable companies and microwave wireless providers have invested billions of dollars in developing and expanding their networks during the more than ten-year period in which ILECs have been offering such discounts.¹⁴⁰ Such conduct cannot be squared with allegations that ILEC discount plans have operated as a substantial entry barrier or have "locked in" customers and precluded them from purchasing services from competitive carriers.¹⁴¹ Moreover, some of the largest historical purchasers of special access services, particularly wireless carriers, have migrated large portions of their demand to alternative suppliers. Sprint, for example, has made a wholesale shift to Ethernet for its backhaul to its cell towers, with published reports indicating that it will have Ethernet backhaul to 40,000 out of its approximately 45,000 cell sites,¹⁴² using "'25 to 30 significant backhaul providers' that will likely be a mix of incumbent LECs, cable MSOs and alternative carriers."¹⁴³ T-Mobile has likewise replaced legacy special access with fiber-based or other advanced backhaul facilities,

¹³⁸ Topper 2009 PN Decl. ¶¶ 67, 68; AT&T 2009 PN Comments at 80-82.

¹³⁹ See, e.g., AT&T 2009 PN Reply at 65.

¹⁴⁰ AT&T also believes that the data being gathered by the Commission will show that CLECs have substantially expanded their dedicated access networks.

¹⁴¹ AT&T 2009 PN Comments at 81-82; Carlton-Sider 2009 PN Decl. ¶ 92.

¹⁴² See Letter from Gary L. Phillips (AT&T) to Marlene H. Dortch (FCC), WC Docket No. 05-25, n.8 (Nov. 10, 2011) (*citing* Credit Suisse, *Sprint, Network Sharing Deals Imminent* (rel. Apr. 5, 2011) (noting that Sprint has 45,000 base stations).

¹⁴³ Carol Wilson, *Sprint to Reveal Backhaul Contract Winners Friday*, Light Reading (Oct. 5, 2011), http://www.lightreading.com/document.asp?doc_id=213050.

and today T-Mobile has “enhanced backhaul covering 100% of [its] 4G network, 95% of which is fiber backhaul” at its cell towers.¹⁴⁴

Given this record, competitors challenging terms and conditions such as discounts bear a heavy burden to demonstrate that any specific term or plan is anticompetitive. Level 3 and tw telecom spent much of their spring and summer in 2012 attempting to do so, but they came up empty. For example, Level 3 and tw telecom argued that AT&T’s SBC Tariff F.C.C. No. 73 “locks in” customer demand by requiring customers to commit large portions of their DSN purchases to AT&T in order to qualify for AT&T’s largest discounts for TDM-based DSN circuits.¹⁴⁵ AT&T demonstrated that this claim is false.¹⁴⁶ This tariff contains no volume discounts. The discounts in this tariff are entirely *term-based* discounts (1, 2, 3, 5, and 7 years), such that larger discounts for any particular circuit are available to customers who commit to purchase it for longer periods of time. Neither tw telecom nor Level 3 has ever contended that *term-based* discounts are anticompetitive, and they are common in the marketplace, including among CLECs.¹⁴⁷

Level 3 and tw telecom also criticize AT&T for enforcing term commitments with early termination charges, notwithstanding that such charges are necessary to enable term-based

¹⁴⁴ Dave Mayo (T-Mobile Senior Vice President of Technology Strategy, Finance & Development), *T-Mobile’s Backhaul Strategy Key to a Competitive 4G Experience*, T-Mobile Issues & Insights Blog, The Official Blog of T-Mobile USA (Aug. 1, 2012), <http://blog.t-mobile.com/2012/08/01/t-mobiles-backhaul-strategy-key-to-a-competitive-4g-experience/>.

¹⁴⁵ Letter from Michael J. Mooney (Level 3) to Marlene H. Dortch (FCC), WC Docket No. 05-25, at 12 (June 27, 2012); Letter from Thomas Jones (tw telecom) to Marlene H. Dortch (FCC), WC Docket No. 05-25, at 7 (June 5, 2012).

¹⁴⁶ See, e.g., Letter from David L. Lawson (AT&T) to Marlene H. Dortch (FCC), WC Docket No. 05-25, at 5-6 (March 28, 2012).

¹⁴⁷ See Letter from David L. Lawson (AT&T) to Marlene H. Dortch (FCC), WC Docket No. 05-25, at 10-12 (Aug. 8, 2012).

discounts. Here again, the CLECs themselves impose early termination charges.¹⁴⁸ If anything, AT&T's early termination charges are more flexible: for example, one large CLEC has reported to the Commission that its early termination charge equals 50 percent of the total payments remaining on the term commitment, whereas AT&T's charge under SBC Tariff F.C.C. No. 73, § 7.2.22(G) is 40 percent of the total payments remaining on the term.¹⁴⁹

Level 3 and tw telecom have further asserted that SBC Tariff F.C.C. No. 73, § 7.2.22(E) has a volume commitment upon which discounts are contingent. Actually, the provision merely provides customers an extra *optional* benefit that allows them to avoid early termination fees if they cancel a circuit before the term has ended. Under this provision, if a customer agrees to maintain a certain number of circuits during the term of the commitment, the customer is allowed to cancel up to 20 percent of those circuits early without incurring any early termination fees. This provision is referred to as a “portability option” because it provides customers with the ability, within specified limits, to add and remove circuits subject to term discounts without incurring any early termination fees. Contrary to the assertions of Level 3 and tw telecom, customers who opt into the portability plan do not receive additional discounts. And far from “locking in” customers, the optional commitment provides them with greater flexibility.

These types of portability options are also offered by CLECs, and no party has alleged that any CLEC has market power or is engaged in anticompetitive conduct on this basis. For example, in the public portion of XO's response to the Commission's first data request, it confirms that some of its “customers have circuit portability capabilities structured into their contracts” and that “[f]requently, it is the overall size of the contract which will allow for

¹⁴⁸ See *id.* at 11-12.

¹⁴⁹ See *id.*

portability.”¹⁵⁰ Similarly, another CLEC has explained to the Commission that it “will generally negotiate a portability clause in commercial negotiations where requested by a customer.”¹⁵¹

CONCLUSION

For the foregoing reasons, the Commission should proceed as described above.

Respectfully submitted,

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February 11, 2013

¹⁵⁰ Letter from Randall W. Sifers (XO) to Marlene H. Dortch (FCC), WC Docket No. 05-25, at 3 (Dec. 5, 2011).

¹⁵¹ *See, e.g.*, Letter from David L. Lawson (AT&T) to Marlene H. Dortch (FCC), WC Docket No. 05-25, at 12-13 (Aug. 8, 2012). Level 3 and tw telecom attempt to distinguish the ILEC portability requirements by asserting that CLECs are effectively *forced* to select the portability options that include volume commitments. Again, actual marketplace evidence refutes that assertion. For example, AT&T has documented examples of large customers that purchase a small portion of circuits under an AT&T portability plan pursuant to volume commitments. *See id.* at 13.

ATTACHMENT A

**ECONOMETRIC PRINCIPLES THAT SHOULD GUIDE THE
COMMISSION'S ANALYSIS OF COMPETITION FOR SPECIAL
ACCESS SERVICE**

Declaration of Igal Hendel and Mark A. Israel

February 11, 2013

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I. INTRODUCTION AND OVERVIEW

A. QUALIFICATIONS

1. Igal Hendel

1. I am Igal Hendel. I am Ida C. Cook Professor of Economics at Northwestern University. I received my Ph.D. from Harvard University in 1994. From 1994 to 2000, I taught at the Economics Department at Princeton University, and from 2000 to 2004, I was a member of the Economics Department at the University of Wisconsin-Madison.

2. I currently teach Industrial Organization, the area of economics that studies imperfectly competitive markets, at both the graduate and undergraduate level. I have previously taught Microeconomics, Econometrics, and Industrial Organization.

3. I am currently Associate Editor of the *American Economic Review* (since 2009). I have previously served as Editor of the *International Journal of Industrial Organization* (2002 to 2004), as Editor of the *Rand Journal of Economics* (2005 to 2011), as Associate Editor of the *Journal of Industrial Economics* (2001 to 2006), on the editorial board of the *Journal of Economic Literature* (2004 to 2008), and on the Board of Editors of the *American Economic Journal: Microeconomics* (2008 to 2009).

4. My research (primarily industry studies) has focused on demand estimation, contracting, price discrimination, non-linear pricing, and markets with asymmetric information. It has appeared in leading economic journals, including the *American Economic Review*, *Econometrica*, the *Journal of Political Economy*, the *Quarterly Journal of Economics*, the *Review of Economic Studies*, and the *Rand Journal of Economics*.

5. My consulting activities have involved econometric analysis and demand estimation.

2. Mark A. Israel

6. I am a Mark A. Israel. I am a Senior Vice President at Compass Lexecon, an economic consulting firm, as well as Managing Director of the Washington, DC office. From August 2000 to June 2006, I served as a full-time member of the faculty at Kellogg School of Management, Northwestern University. I received my Ph.D. in economics from Stanford University in 2001.

7. At Kellogg and Stanford, I taught graduate level courses covering topics including business strategy, industrial organization economics, and econometrics. I specialize in the economics of industrial organization, which is the study of imperfectly competitive markets and includes the study of antitrust and regulatory issues, as well as applied econometrics and the economics of information. My research has been published in leading economics journals including the *American Economic Review*, the *Rand Journal of Economics*, the *Review of Industrial Organization*, and *Antitrust Source*.

8. I have worked in consulting at Compass Lexecon since 2006, where I have applied theoretical and econometric methods to the analysis of mergers and related antitrust issues, intellectual property, class certification, and damages calculations. My work has involved a range of industries such as communications, cable television, various other high technology industries, airlines, railroads, consumer beverages, financial markets, pharmaceuticals, and publishing. My consulting work has included submission of expert reports, declarations, and affidavits to multiple government agencies and federal courts.

B. OVERVIEW AND ASSIGNMENT

9. Special access services are dedicated local communications circuits provided by incumbent local exchange carriers (“ILECs”).¹ Other communications service providers frequently use these services (or substitutes) as inputs to offer services to their retail customers. In 1999, in response to developing competition, the Federal Communications Commission (“Commission”) adopted “pricing flexibility” rules designed to relax regulation of ILEC special access services. The Commission adopted triggers for pricing flexibility based on the extent to which competitive local exchange carriers (“CLECs”) have collocated portions of their competing fiber networks at ILEC central offices. The Commission is now reviewing whether its 1999 rules are “working as predicted.”²

10. As part of its review of special access rules, the Commission has initiated a process that will require “providers and purchasers of special access service and certain other services to submit data, information, and documents to allow the Commission to conduct a comprehensive evaluation of competition in the special access market.”³ The Commission proposes a “one-time, multi-faceted market analysis,” the purpose of which is to “determine

¹ Special access services can be used either for interstate services, which are regulated by the Commission, or for intrastate services, which are regulated by state public utility commissions. In this Declaration, unless otherwise specified, we limit our discussion of special access service to the interstate services regulated by the Commission.

² *In the Matter of Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Report and Order and Further Notice of Proposed Rulemaking, December 18, 2012 (hereinafter *FNPRM*), ¶ 12.

³ *FNPRM*, ¶ 13.

where and when special access prices are just and reasonable, and whether our current special access regulations help or hinder this desired outcome.”⁴

11. We have been asked by counsel for AT&T Services, Inc. (“AT&T”) to review and comment upon the econometric analyses proposed by the Commission, particularly with regard to steps that can be taken to improve the prospects that these analyses yield accurate results. We have also been asked to consider whether the Commission should consider alternative analyses either in lieu of, or in addition to, the “one-time, multi-faceted” regression approach proposed in the *FNPRM*.

C. ECONOMETRIC CONSIDERATIONS AND CONCLUSIONS

12. A key component of the market analysis proposed by the Commission is an econometric analysis, built around the estimation of panel data regressions.⁵ Panel data regressions are a type of statistical analysis that uses data consisting of repeated observations on a cross-section of objects (*e.g.*, areas or products).⁶ The use of panel data can, in certain circumstances, allow the analyst to control for unobservable variables. In particular, by using comparisons over time within the same unit, “fixed effect” panel regressions attempt to hold the other relevant unobservable variables constant.

⁴ *FNPRM*, ¶ 67.

⁵ *FNPRM*, ¶ 68.

⁶ Jeffrey M. Wooldridge (2002), *Econometric Analysis of Cross Section and Panel Data*, The MIT Press: Cambridge, Chapter 1. The cross-section of objects can be defined at various levels of detail—for example, one could consider a cross-section of average prices by MSA, or a cross section of prices of specific products, sold by particular providers, to particular buyers, in particular MSAs.

13. In the present context, the Commission proposes to study the determinants of special access prices by relating changes in special access prices over time to changes in market structure (*e.g.*, number of competitors) over the same time period within the same cross-sectional unit. Much of the discussion in this Declaration identifies where there is a significant risk that this proposed regression analysis will generate misleading results because the assumptions required for the validity of the estimation do not hold.

14. The Commission proposes to collect two years' worth of data on facilities locations and billings (including the type and amount of service, the price paid and the identity of the customer).⁷ Specifically, the Commission proposes to collect data for special access services including DS1s and DS3s, and packet-based dedicated services (*e.g.*, Ethernet), as well as best efforts business broadband Internet access services and fixed wireless broadband services. The Commission proposes to use the collected data from 2010 and 2012 to construct measures of market structure (*e.g.*, locations and nature of network connections serving locations), price (based on monthly billing data), and demand (*e.g.*, sales and characteristics of the services provided).⁸

⁷ The Commission proposes to collect year-end data from 2010 and 2012 on facilities information (*e.g.*, location data) and monthly billing data for 2010 and 2012. As we discuss below, the fact that the Commission only proposes to collect end-of-year data on locations means that it will effectively only have at most two observations for each cross-sectional unit of observation. (*FNPRM*, Appendix A, § II.)

⁸ *FNPRM*, ¶ 68. Notably, the Commission in the *FNPRM* did not propose to seek information about buyer characteristics, eliminating any ability to control for pricing differences based on differences in buyer power or other buyer characteristics.

15. Using these data, the Commission proposes to estimate panel regressions designed to assess the effect on price of actual and potential competition between facilities-based providers, controlling for other factors that influence the price of special access services including, among other things, the characteristics of the service and factors affecting the costs of providing the service.⁹ Recognizing the burdensome data collection required to conduct its analysis, the Commission characterizes its approach as a “one-time” analysis. Therefore, one important goal of the Commission’s proposed analysis is to “identify reliable new proxies for special access competition, which could be employed going forward to evaluate petitions for pricing flexibility in a consistent, streamlined manner.”¹⁰

16. The *FNPRM* describes in only general terms the type of econometric analysis that the Commission anticipates conducting: It notes that “[t]he precise form of econometric modeling we conduct will be dependent, in large part, on the nature and the quality of the data produced in response to the Order.”¹¹ Given the uncertainty inherent in the Commission’s proposed approach, it is critical that the Commission engages in a transparent process designed to reach well-supported conclusions based on robust and replicable analysis.

17. In the remainder of this Declaration, we discuss general econometric principles that should guide the Commission’s efforts, the specific and substantial challenges the Commission faces should it proceed with its proposed approach, and the potential value of

⁹ *FNPRM*, ¶ 68.

¹⁰ *FNPRM*, ¶ 78.

¹¹ *FNPRM*, ¶ 68.

certain alternative approaches that are consistent with the Commission's stated logic for its pricing flexibility rules and that may be more straightforward and more robust than the analysis the Commission has proposed to undertake. We reach the following conclusions:

- *The economic profession has well-accepted scientific methods that need to be applied to develop reliable results from any econometric analysis, particularly complex analyses like the Commission proposes to undertake. These methods include:*
 - full transparency of the research process, including transparency regarding all procedures used for data collection, data cleaning, model specification and statistical analysis, with each step subject to peer review;
 - econometric models based on sound economic theory that are designed to test *a priori* specified hypotheses; and
 - principled decisions about data cleaning, processing, and reconciliation (including treatment of outliers), again subject to vetting and testing by other experts.
- *Sound techniques must be applied to any data reconciliation and data processing undertaken by the Commission. Data reconciliation is likely to be particularly important given the complexity of the data that the Commission has requested and the likelihood that responding parties may not store and produce data in compatible formats or not even have some data that will be requested by the Commission. As in any complex econometric study, the possibility of inappropriate conclusions exists if*

appropriate data reconciliation and processing methodologies are not carefully and transparently applied, with methods and findings subject to extensive review.

- *The proposed panel data regressions raise important methodological issues that require the use of well-accepted professional methods, transparently applied.* The Commission will have to deal with a number of significant technical issues, any one of which could, if not overcome (which may or may not be possible), render its approach invalid. These issues include:

- *Intricate linkages in special access pricing across geographic regions, products and time:* Contracts may cover multiple locations and geographic areas with little or no variation in base unit prices, many different products (including a combination of special access products and, in some cases, other unregulated services), and many time periods. Contracts also often contain fixed percentage or lump sum term and volume credits. Hence, observable variation in the dependent variable may be limited, may fail to reflect meaningful location-specific differences, and may introduce systematic error related to the explanatory variables.
- *Sample selection bias:* To the extent the study focuses on prices in those areas that have been granted regulatory relief (as we believe it should), such an approach creates a non-random sample and thus may result in biased estimates.
- *Endogeneity of the key explanatory variables:* The extent of competition in a given area is jointly determined, along with price, in “equilibrium,” based on

the underlying supply and demand characteristics. The resulting “endogeneity” is known to lead to biased econometric estimates if not properly addressed.

- *Omission of relevant variables:* Some economic factors that affect prices (*e.g.*, quality of service and costs) may be difficult or impossible to observe and may vary within geographic units across the sample in ways that are correlated with market structure. In a manner analogous to endogeneity concerns, omitting important variables is known to lead to biased econometric estimates.
- *Potentially unstable economic relationships in the underlying data:* The time period on which the Commission is collecting data (2010 and 2012) covers a period of significant change in technology and consumer preferences for special access services, with many providers shifting from traditional DS_n services toward Ethernet and other IP-based services. This raises the possibility that the underlying economic relationships have changed in unobservable ways, which could invalidate the panel regression approach.
- *The ability of the Commission to deal with these issues will depend, to some extent, on the quality of the data collected.* It is possible that the available data may not allow the Commission fully to deal with certain technical issues. In those instances, the Commission must be cautious in the conclusions it draws from its analysis. In all cases, it will be important for any results to be subject to rigorous sensitivity and diagnostic testing, including by outside economists.

- *The Commission should bear in mind the ultimate objective of the analysis and should keep an open mind with respect to the findings of the study, including the possibility that the relation between price and measures of competition cannot be identified given data limitations.* Ultimately, the analysis proposed by the Commission must guide the implementation of easily administered regulations. With this objective in mind, there is a real risk that the type of regression analysis that the Commission proposes will fail to generate statistically meaningful or interpretable results. It is also uncertain whether the proposed analysis can be used to develop an easily administered regulatory standard that can account for future changes in market structure.
- *The Commission should consider the use of alternative, potentially simpler, analyses to assess whether the existing or alternative pricing flexibility triggers are reasonably accurate measures of the extent of competition (including the presence of sunk investments by non-ILEC competitors).* In particular, the Commission should consider whether alternative approaches—including the use of dependent variables other than price—may provide more reliable results, or results which can more pragmatically be implemented as triggers for regulatory relief going forward. At a minimum, the Commission should examine the extent to which its existing collocation “triggers” functioned as intended in identifying the presence of alternative network facilities.

18. In the remainder of this Declaration, we develop these points in more detail. We begin in Section II with some background information on special access and related services and we discuss the Commission’s current regulatory framework. In Section III, we describe appropriate professional standards for undertaking complex econometric research, which

should guide the Commission’s research in this proceeding. In Section IV, we describe some specific and substantial difficulties likely to arise as the Commission undertakes its proposed empirical analysis (recognizing that it is likely that more issues will be uncovered throughout the process), which heighten the need for transparency and for application of appropriate research standards in this proceeding. In Section V, we explain that the Commission should also study the extent to which its existing triggers are functioning as intended and, more generally, consider alternative empirical approaches that may prove superior to the “one-time, multi-faceted market analysis” it is proposing.

II. BACKGROUND ON SPECIAL ACCESS SERVICES AND THE COMMISSION’S REGULATORY FRAMEWORK

19. This section provides a brief overview of special access services, their regulation by the Commission, and pricing practices for these services.

A. BACKGROUND ON SPECIAL ACCESS AND RELATED SERVICES

20. ILECs provide the DS1 and DS3 high-speed dedicated lines known as “special access” services using legacy, non-packet-based “TDM” technology. Such special access circuits consist of both channel terminations and interoffice transport. Customers purchase these “rate elements” in various combinations. Providers sell many special access services to other communications service providers, including CLECs or wireless carriers, which use them as inputs in providing a broad range of communications services to their retail customers. ILECs also sell special access circuits to large business customers and use these circuits as inputs to their own retail services.

21. ILECs face competition in the provision of high-speed dedicated lines.¹²

Traditionally, this competition came from CLECs deploying alternative fiber network facilities and offering TDM-based services. But increasingly, providers can offer competing wireline and wireless services based on Ethernet and other packet-based technologies that are distinct from the TDM-based technology that the ILECs use in providing the DS-1 and DS-3 services that are at issue in this proceeding. Additionally, other providers that compete with the ILECs may provide different quality of service commitments, including “best efforts” broadband Internet access services.

22. Specific examples of competition faced by ILECs include:

- CLECs have deployed local networks to provide special access services in many metropolitan areas. CLECs bid for customers’ special access business both at locations already connected to their fiber networks and at locations that can be reached by extensions from those networks. When they win contracts for this business, they may then build “lateral” connections from their network to the customer locations they do not already serve.
- Wireless spectrum also increasingly is used to provide dedicated high-speed connections both in downtown and in other areas. These fixed wireless services can be used both to provide “backhaul” for mobile wireless service firms—connecting

¹² For a general discussion of competition for special access services, see *In the Matter of Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Declaration of Dennis W. Carlton and Hal S. Sider, January 19, 2010 (hereinafter *Carlton-Sider Declaration*).

their radio towers to their terrestrial networks—and to provide other services that otherwise would use LEC-provided special access as an input.

- Using their widespread networks, cable companies provide high-speed connections to business and communications services providers that compete with ILEC-provided special access services.

23. By requiring that “competitive providers”—defined to include any “competitive local exchange carrier (CLEC), interexchange carrier, cable operator, wireless provider or any other provider that is not an incumbent LEC operating within its incumbent service territory”—comply with its data request, the Commission appears to have recognized that all of these types of firms compete at least to some extent with the ILECs in the provision of high speed circuits.¹³

B. BACKGROUND ON THE COMMISSION’S CURRENT REGULATORY FRAMEWORK FOR SPECIAL ACCESS

24. Since 1991, ILECs’ pricing of interstate special access services has been regulated by the Commission’s price cap rules.¹⁴ Under price cap regulation, interstate access services were grouped in different “baskets,” such as the “common line” and “special access” baskets. Each basket was subject to a Price Cap Index that caps the total charges an ILEC may impose for services in the basket in a given area.¹⁵ Under price cap regulation, the maximum price

¹³ *FNPRM*, ¶ 21.

¹⁴ *FNPRM*, ¶ 2.

¹⁵ *In the Matter of Access Charge Reform*, CC Docket 96-262, Fifth Report and Order and Further Notice of Proposed Rule Making, August 5, 1999, ¶ 12 (hereinafter *Pricing Flexibility Order*).

that an ILEC can charge for its overall basket of special access services is adjusted annually based on the rate of inflation less an “X” factor that was initially based on estimates of historical rates of industry productivity growth. Price caps for special access services were initially based on price levels established under rate-of-return regulation.¹⁶

25. In 1999, as ILECs began to face increasing competition for their special access services, the Commission modified its regulation of special access rates and adopted pricing flexibility rules, which allow ILECs, based on competitive showings, certain relief from the Commission’s price cap regulations.¹⁷ In “Phase I” relief, ILECs may offer contract tariff and volume and term discounts, while remaining subject to price caps. In “Phase II” relief, the ILEC is freed from all rate structure and price cap rules, although it still must provide its services pursuant to tariff and dominant carrier regulations, including the obligation (enforceable in administrative complaint proceedings) to offer rates and other terms that are “just and reasonable.”¹⁸ Both types of relief are based on the ILEC showing certain levels of competitive entry, as measured by the extent of facilities-based collocation in an ILEC’s wire centers in a Metropolitan Statistical Area (“MSA”). Pricing flexibility is granted separately for interoffice transport and channel terminations on an MSA-specific basis.

26. Table 1 summarizes the collocation levels, or “triggers,” required for Phase I and Phase II relief for interoffice transport and channel terminations.

¹⁶ *In the Matter of Policy and Rates for Dominant Carriers*, CC Docket 87-313, September 19, 1990, ¶ 17 (hereafter, “LEC Price Cap Order”).

¹⁷ *FNPRM*, ¶ 4.

¹⁸ *FNPRM*, ¶ 2.

Table 1: Summary of FCC Pricing Flexibility Collocation Triggers

	Interoffice Transport		Channel Terminations to End Users	
	Revenue Test	Area Test	Revenue Test	Area Test
Phase I Pricing Flexibility	30% of Revenues	15% of Wire Centers	65% of Revenues	50% of Wire Centers
Phase II Pricing Flexibility	65% of Revenues	50% of Wire Centers	85% of Revenues	65% of Wire Centers

Source: Pricing Flexibility Order, ¶¶ 93, 100

27. Although ILECs have obtained Phase II relief for dedicated transport and channel termination in many MSAs across the country, Table 2 indicates that a significant number of MSAs remain subject to price caps. Notably, some of the areas that have attracted substantial competitive entry, such as New York, Los Angeles, and Chicago, have not been granted Phase II relief for channel terminations. Only 34 percent of MSAs, accounting for 37 percent of the U.S population living in MSAs, have been granted full Phase II pricing flexibility for both channel terminations and interoffice transport.¹⁹

¹⁹ These calculations exclude the non-MSA portions of the United States.

Table 2: Number of Areas with Different Special Access Regulatory Status

Price Flexibility Relief				
Transport	Channel Terminations	Number of MSAs	Percent of MSAs	Percent of Population
No Relief	No Relief	133	35.7%	9.3%
Phase I	No Relief	13	3.5%	1.3%
Phase I	Phase I	7	1.9%	1.8%
Phase II	No Relief	18	4.8%	4.6%
Phase II	Phase I	75	20.1%	46.2%
Phase II	Phase II	127	34.0%	36.8%
Total		373	100.0%	100.0%

Source: USTelecom.

28. Table 2 also reflects the fact that the two components of special access service, interoffice transport and channel terminations, are frequently subject to different levels of regulation. For example, 20 percent of MSAs, accounting for 46 percent of the U.S. population living in MSAs, have been granted Phase II relief for interoffice transport but only Phase I relief for channel terminations. As discussed in Section IV.A, such differences in regulatory regimes for rate elements that are bundled into a single service complicate the calculation of the price variable that the Commission intends to use in its regression model.

C. OVERVIEW OF ILEC PRICING OF SPECIAL ACCESS SERVICES

29. Both the fact that ILECs face multiple forms of price regulation—that differ by geography and component of special access service (*i.e.*, channel terminations and interoffice transport—and the way in which ILECs negotiate and sell special access services greatly

complicate the calculation of prices for special access service for purposes of conducting a panel regression analysis. Additionally, to the extent other firms, such as CLECs or cable companies, follow different pricing practices for their high speed services (and we understand that they do), there may be additional issues in constructing price measures that are consistent across providers.

30. For its DS_n-level special access services, AT&T publishes tariffs that generally correspond to the Regional Bell Operating Company (“RBOC”) regions of its legacy ILEC operations.^{20, 21} These special access tariffs provide different pricing density zones, but tariffed rates within a density zone are typically uniform throughout a legacy RBOC region (or at least within a state), though they may differ across regions. For example, AT&T’s generally applicable tariffs for DS_n-level special access services may specify different rates for rural and urban areas, but do not specify different rates for Dallas and Little Rock, let alone different rates for individual customer locations. AT&T’s tariffs offer discounts off of the month-to-month base special access rates for customers that commit to purchasing services for longer terms, up to an eight-year commitment.

31. Although AT&T maintains base special access tariffs that allow the purchase of individual DS_n circuits, AT&T typically sells special access service to customers on a much broader basis. AT&T’s large customers, which make up the bulk of its special access

²⁰ The information in ¶¶ 30-33 is based on interviews with managers in the AT&T Business Solutions division at AT&T, February 1, 2013.

²¹ For higher-speed special access services that have been de-tariffed and are not price-regulated, AT&T publishes an Interstate Access Guidebook to describe those services to purchasers.

revenue, often negotiate a single contract that covers all purchases of special access services throughout a multi-state region. Such agreements cover any location within that region and may involve purchases by a single customer of hundreds or even thousands of individual dedicated circuits. Contracts typically have terms of three to five years.

32. AT&T and its customers often negotiate a single percentage discount off of the “base” rates when a customer agrees to make expenditures that meet or exceed a Minimum Annual Revenue Commitment (“MARC”). The negotiated revenue commitment can be based on all services covered by the contract, including, for example, purchases of special access services that are covered by price caps and by Phase I and Phase II price flexibility rules, as well as non-price regulated services such as OCn circuits and Ethernet services. Under some contracts, AT&T applies the discount as a credit to the customer in the form of a lump sum payment at year end. Given the bundled nature of the offerings (both in terms of locations and services) and, potentially, a single credit (or fixed percentage discount) that applies based on total spend from all services and all locations, it is not possible to observe a price for individual circuits or areas without making arbitrary accounting allocations that do not necessarily reflect the underlying competitive conditions for any particular service in any particular area.

33. In addition to negotiating base rates and discounts, AT&T’s contracts can also specify other non-standard price terms, such as waivers of non-recurring charges (“NRCs”), which can be used to cover costs such as fixed installation costs. AT&T’s contracts can also provide customers with non-price benefits (that provide financial value to the customer), such as

increased quality of service commitments, termination liability waivers for upgrades to other services, and circuit “portability.”²²

III. APPROPRIATE PROFESSIONAL STANDARDS SHOULD GUIDE THE COMMISSION’S STUDY

34. In this section, we enumerate some general principles that sound econometric analysis should follow. Although the panel data regressions proposed by the Commission are a well-established form of econometric analysis, the results generated by such an analysis can be invalid absent adherence to sound econometric and economic principles tied to a clear understanding of the underlying facts of the industry being studied. And, as detailed below, the complex nature of special access pricing, the regulatory overlay, and the variability in the type of data likely to be available mean that the Commission’s proposed analysis is not a simple undertaking.

A. ACCEPTED PROFESSIONAL PRACTICE CALLS FOR TRANSPARENCY THROUGHOUT THE RESEARCH PROCESS AND FULL REVIEW BY OUTSIDE ECONOMISTS

35. Econometric methods of the sort proposed by the Commission—whether panel data regressions like the Commission proposes here or other econometric methodologies—are standard in the academic literature as well as in the context of antitrust litigation and merger review. Such methodologies can be highly informative, particularly due to their ability to

²² Circuit portability refers to the ability of a customer to terminate up to a certain number of circuits without paying early termination charges and still satisfy applicable revenue or quantity requirements as long as certain revenue and/or quantity of in-service circuit commitments are maintained. Circuit portability provides a customer with greater flexibility to satisfy term commitments as the location of its demand shifts.

hold many factors fixed in order to isolate relationships of economic interest. But they can also be complicated to implement and to interpret, with results potentially sensitive to a wide variety of embedded data processing and analytical decisions. Indeed, inadequate data and inappropriate methods can lead to biases or results whose apparent statistical significance is spurious.

36. In both academic and antitrust (whether regulatory or litigation) settings, such complexity and sensitivity of results is dealt with in part by transparency, which facilitates full review of the empirical analysis by outside economists. All aspects of analysis—from processing of raw data through final regression results—are generally subject to review by other experts. For example, academic papers submitted to journals for publication are subject to review by other academics. Moreover, it is increasingly common for journals to require authors to make available the underlying data and computer code used to generate the results so that other academics and interested parties can replicate and test the robustness of the results.²³ Similarly, in the litigation and merger review context, expert economists are often required to make available to opposing experts their underlying data and code.

37. The peer review process is designed to identify potential weaknesses in analyses and to suggest improvements. It allows a variety of experts with knowledge in related areas to provide input into the analytic process. A well-designed peer review process can lead to more

²³ For example, a leading economics journal, the *American Economic Review*, will publish a paper only if “the data used in the analysis are clearly and precisely documented and are readily available to any researcher for purposes of replication.” See <http://www.aeaweb.org/aer/data.php>. *Site Visited*, February 11, 2013.

robust and well-supported conclusions. This can only occur when regression analysis is subject to review by other researchers, with the specification and relevant data available to reviewers.

38. For the same reasons that transparency and peer review is standard professional practice—to obtain input to improve the research methodology and reliability of results and to increase confidence in those results by all parties—transparency is critical to the Commission’s proposed panel regressions. In particular, in this proceeding, transparency has several key elements:

- *Full electronic access (subject to appropriate protective order and confidentiality obligations) to the raw data by outside counsel and outside experts.* Raw data includes both the data submitted by industry in response to data requests and any Commission or third-party data that may be used in the regression analyses (*e.g.*, measures of business density, population, wage, income.). We understand that some of the data that will be submitted in response to the Commission’s data requests is highly confidential and that measures to protect confidentiality that go beyond the Commission’s standard protective order terms may be considered. We note only that it is essential that any such restrictions do not limit the ability of outside economists to replicate and evaluate the Commission’s analyses or to use the data to test alternative hypotheses or econometric models.
- *Access to algorithms developed and implemented by the Commission to process the raw data.* Data processing includes supplemental data requests, efforts to audit or test the completeness and accuracy of submitted data, efforts to reconcile data across

submissions by multiple carriers, removal of outliers, any other procedures used to clean the raw data, and computer code used to create the estimation dataset from the raw data.

- *Access to the processed data used by the Commission in its regression analysis.* The processed data includes the final estimation sample(s) used by the Commission to conduct its economic analysis, including all observations and variables generated or relied upon by the Commission.
- *Access to computer algorithms used to run regressions and other analysis.* Computer code must be sufficient to replicate any results relied upon by the Commission.
- *Explanation of any significant modifications made to the tested hypotheses or modeling approach during the course of the analysis.* In particular, the Commission should specify in advance the hypotheses it intends to test and the basic modeling approach it intends to use. Then, when results of the analysis are published, if the tested hypotheses or modeling approach has changed from the initial plan, the Commission should state what hypotheses it ultimately tested and the modeling approach it ultimately used. To the extent the hypotheses or approach changed significantly during the course of the analysis, the Commission should describe the changes and explain what motivated those changes.

39. The Commission has indicated that it expects the analysis to be conducted via an iterative process. As a result, it is necessary to establish a procedure that facilitates comments by interested parties *at each step of the process* and not just at the end of the process.

40. The importance of transparency, as well as the ability of other researchers to replicate analyses, especially econometric analyses, is widely recognized. For example, the National Research Council has stated that the “ability to replicate a study is typically the gold standard by which the reliability of scientific claims are judged.”²⁴ As Anderson *et al.* (2008) have noted:²⁵

[a]t a minimum, the results of an endeavor – if it is to be labeled ‘scientific’ – should be replicable, *i.e.*, another researcher using the same methods should be able to reach the same result. In the case of applied economics using econometric software, this means that another researcher using the same data and the same computer software should achieve the same results. Yet, it is well known that the likelihood of replication by a reader, or subsequent researcher, without the original authors’ programs and data is near zero.

The academic literature also recognizes that principles of transparency should be applied in the legal setting as well. For example, Rubinfeld (2000) argues:²⁶

In evaluating the admissibility of statistical evidence, courts should consider the following issues: 1. Has the expert provided sufficient information to replicate the multiple regression analysis? 2. Are the methodological choices that the expert made reasonable, or are they arbitrary and unjustified?

To assist the decision maker making these determinations, Professor Rubinfeld proposes that parties share data and methods of analysis to ensure the reliability of the results.

²⁴ National Research Council (2002), *Access to Research Data in the 21st Century: An Ongoing Dialogue Among Interested Parties: Report of a Workshop*, National Academy Press, at 7.

²⁵ Richard G. Anderson, William H. Greene, B. D. McCullough & H. D. Vinod (2008), “The Role of Data/Code Archives in the Future of Economic Research,” 15 *Journal of Economic Methodology* 99-119 (March), at 100.

²⁶ Daniel L. Rubinfeld (2000), “Reference Guide on Multiple Regression,” in Federal Judicial Center, ed., *Reference Manual on Scientific Evidence*, at 201.

B. SPECIFICATION OF REGRESSION MODEL AND INTERPRETATION OF RESULTS SHOULD BE GROUNDED IN ECONOMIC THEORY AND SHOULD AVOID DATA MINING

41. A defining aspect of good econometric analyses—which separates them from purely statistical searches for patterns or correlations in the data—is that the models estimated and the inferences drawn from the models are grounded in economic theory. Panel regressions of the sort proposed by the Commission must rely on both economic theory and knowledge of the industry to determine how to specify the regressions and which variables to include as explanatory factors.²⁷

42. It is especially important that one use care to ensure that any patterns identified in an econometric analysis represent true economic relationships rather than spurious correlations. Section IV elaborates on potential hurdles to the interpretation of the results due to endogeneity, sample selection, model instability, and other factors. Economic theory and institutional knowledge help with proper interpretation of the results in a way that accounts for these concerns.

43. A clear model selection procedure, which avoids testing many different hypotheses in a search for “statistical significance,” is essential to avoid false positives.²⁸ To understand the problems associated with testing multiple hypotheses on the same sample data, note that the standard “five percent level” for statistical significance means that a relationship as strong as

²⁷ See, e.g., Peter C. Reiss and Frank A. Wolak (2007), “Structural Econometric Modeling: Rationales and Examples from Industrial Organization,” *Handbook of Econometrics, Volume 6A*, Chapter 64.

²⁸ Arthur S. Goldberger (1991), *A Course in Econometrics*, Harvard University Press: Cambridge, MA, Chapter 24.

the observed relationship could be found purely by chance—in the absence of any true relationship—five percent of the time. This means that if an analyst ran 20 different specifications of the regressions, it would not be surprising to find that one of these specifications may show a certain explanatory variable to be statistically significant, even if no true relationship existed. In this proceeding, the problems of testing multiple hypotheses may be unavoidable because no single economic theory dictates how market structure affects prices and multiple dimensions of market structure could affect prices. It might seem natural to try many specifications to see how the different dimensions of competition affect prices, but there may be a large number of specifications to try and testing multiple hypotheses on the same underlying data increases the likelihood of spurious findings of significance. Such complexity highlights the importance of adherence to pre-specified model selection procedures, and validation methods such as split samples, whereby the estimation is done on one part of the data and then validated on another part. It also highlights the need for transparency so that independent validation can be conducted.

C. DATA PROCESSING SHOULD FOLLOW GENERALLY ACCEPTED METHODS

44. To reach sound conclusions and therefore provide a valid basis for forward-looking policy-making, the statistical analysis must also follow generally accepted principles for data processing. Although it may not always receive sufficient attention in discussions of econometric methodology, the steps taken to process and “clean” the data received in response to a survey can be determinative of the results that will be obtained (put more colloquially, “garbage in, garbage out”). As discussed more fully below, the data in this proceeding are likely to require substantial manipulation before they are usable: Billing

records are notoriously “messy,” with different firms maintaining information in incompatible forms, prices reported by specific firms containing unexplained outliers such as negative or unreasonably large prices, important record values missing altogether, and so on.

45. The Commission is likely to have to deal with multiple issues when reconciling data submissions across providers. Possible complications include:

- Circuit design, rate structure and service quality may differ across providers;
- Credits may be accounted for differently across providers;
- Data elements may vary across providers;
- Business rules may be codified differently across providers;
- Providers may use different conventions for recording and reporting customer locations;
- The protocols employed by providers may vary over time as systems are changed;
- Providers may simply lack key data sought by the Commission;
- Affiliates may be treated differently across providers.

46. It is likely that the data will require substantial processing and cleaning before any regressions can be run. As noted above, such cleaning should be done in a transparent way, with the raw data and data processing code made available to outside researchers who can explore the sensitivity of results to decisions made.

47. Data cleaning and processing (including treatment of outliers) should also be fully documented, and done in a manner consistent with standard professional practice. For

example, Kennedy (2003) indicates a number of questions that should be asked when dealing with complex data:²⁹

Even if a researcher knows the context, he or she needs to become intimately familiar with the specific data with which he or she is working Data cleaning looks for inconsistencies in the data – are any observations impossible, unrealistic, or suspicious? The questions here are mostly simple, but could become more complicated in a particular context. Do you know how missing data were coded? Are dummies all coded zero or one? Are all observations consistent with applicable minimum or maximum values? Do all observations obey logical constraints they must satisfy?

It is important to review the data using a variety of statistical tests ranging from computing simple summary statistics to running more advanced diagnostic tests. Kennedy (2003) further notes:³⁰

Inspecting the data involves summary statistics, graphs, and data cleaning, to both check and ‘get a feel for’ the data. Summary statistics can be very simple, such as calculating means, standard errors, maximums, minimums, and correlation matrices, or more complicated, such as computing condition indices and influential observation diagnostics. The advantage to graphing is that a picture can force us to notice what we never expected to see. Researchers should supplement their summary statistics with simple graphs: histograms, residual plots, scatterplots of residualized data, and graphs against time.

Failure to adhere to appropriate data processing principles means that sound conclusions cannot be drawn from any results derived from the data.

²⁹ Kennedy (2003) at 392.

³⁰ *Id.*.

IV. THE PROPOSED PANEL REGRESSIONS RAISE IMPORTANT METHODOLOGICAL ISSUES

48. Although the panel data regressions proposed by the Commission may appear straightforward at first glance, those implementing the analysis will have to grapple with numerous and sometimes subtle complexities in the data and the underlying economic relationships between prices, market structure, and the supply and demand conditions in each area. The *FNPRM* itself mentions a few of the challenges that the Commission is likely to face. For example, the *FNPRM* notes that “prices, which regulation impacts, likely play a role in entry decisions.”³¹ Although the Commission indicates that it expects to control for such issues in its econometric specifications, doing so is not likely to be easy. In many instances, the necessary working assumptions are likely to have important implications for the interpretation of the results.

49. In this section, we outline some (but surely not all) of the econometric challenges that the Commission’s proposed analysis will have to address. Unless sufficient steps are taken to address each of these issues—something that may or may not be possible, depending among other things on the nature of the data received—any one of them will make it likely that the Commission’s study produces results that are biased, imprecise, and/or misleading.

A. PRICES ARE NOT INDEPENDENT ACROSS GEOGRAPHIC AREAS, TIME, OR PRODUCTS, MAKING MODEL SPECIFICATION AND INFERENCE DIFFICULT

50. The Commission’s panel regression approach would be best implemented if a specific data structure—in which each MSA (or a smaller geographic area) in each year represented a

³¹ *FNPRM*, ¶ 68.

distinct observation, for which a well-defined price (or a well-defined set of prices) could be identified, with that price determined by competitive conditions in the specific area/time-period combination—held. However, on multiple dimensions, the relevant data structure for special access services is much more complex than this simple picture. In this section, we describe some aspects of this complexity and their implications for econometric analysis.

51. As discussed in Section II.C, pricing for special access services is extremely complex. Unlike in some other industries (*e.g.*, retail products) in which panel data regressions are often used to study the determinants of prices, contracts for special access services are typically negotiated on a long-term basis for a bundle of services that span multiple geographic areas and multiple products. Increasing the complexity, different geographic areas and different products in a bundle may be subject to different regulatory regimes. The complex way in which special access services are offered and priced causes several econometric complications.

1. Linkages across Geography

52. A first complication, arising from the linkage of prices across geographic areas, is that recorded prices across areas may show no meaningful variation. When a contract covers several areas, as is the case for large purchasers that account for a large percentage of sales in the industry, the tariffed or negotiated price is often common to multiple areas and thus cannot meaningfully be attributed to a specific location. In such cases, prices will not just reflect local market conditions.

53. Even more problematic, in many circumstances credits, which are a significant factor in the overall price paid by the purchaser, can be attributed to specific locations only through

arbitrary allocations. As noted above, in many of AT&T's special access agreements a purchaser that meets a MARC is entitled to a fixed percentage or lump sum credit. Because the MARC is ordinarily calculated based on the aggregate of *all* purchases under the contract at all locations—whether “price flex” or “non-price flex” and whether DS_n or higher capacity, non-price regulated services—the credit cannot be readily associated with any particular location or service such that it accurately reflects economic conditions in that location or for that service. The Commission's rules and/or accounting conventions might require that the credit be attributed to particular services or geographic areas (such as DS_n-level services in areas subject to pricing flexibility). But such an allocation would not mean that the prices for DS_n level service would necessarily reflect competitive conditions just in those areas. In the extreme case, if firms use different accounting rules, the variation in prices across firms in the same region may reflect pure accounting considerations as opposed to the impact of market forces.

54. Especially pernicious effects could occur if the allocation is not random. Accounting rules may mean discounts are recorded in a way that correlates with competition and market conditions. For example, consider the following hypothetical but plausible scenario. A large communications service provider purchases special access services from an ILEC in locations throughout a multi-state region under a single negotiated contract. The contract covers the purchase of channel terminations and transport subject to a mix of price cap regulation and Phase I and Phase II relief. Furthermore, in addition to a term discount, the contract includes a lump sum credit—if the customer meets a negotiated annual revenue target, the customer gets a large lump sum credit at the end of the year. The ILEC allocates these discounts on a

pro rata basis to the services provided in areas subject to Phase I or Phase II pricing flexibility. To the extent that special access services with pricing flexibility are subject to systematically different levels of competition than services that have not been granted pricing flexibility (or full Phase II pricing flexibility), basing a regression analysis on this accounting convention could lead to biased results. This is because the error term—created by the artificial allocation of discounts—would be correlated with measures of competition, leading to endogeneity concerns (discussed further below).

55. One potential approach to address the linkages across cities would be to include controls for the competitive situation in other cities, but this is likely to add substantial complexity to the model specification. Indeed, such an approach may effectively be infeasible, as contracts between different buyer/seller combinations may cover different combinations of cities (with the set of cities potentially determined as part of the negotiation process), making it nearly impossible to determine the appropriate set of variables describing the competition for any particular contract. If the prices in the different cities covered by the panel regression are interconnected in complex enough ways via multi-area contracts, a panel regression to explain prices by city (or smaller geographic area) may prove infeasible.

2. Linkages across Products

56. As discussed above, contracts sometimes include not only special access services, but also other unregulated services (like OCn service, packet service, *etc.*). Again the “bundled” nature of the offering means prices are unlikely to reflect the economic conditions for any particular product or service.

57. Further, even considering special access services by themselves, the nature of how these services are offered and regulated creates additional complexity for any regression using price as the dependent variable. For example, as described above, for purposes of regulation, ILEC special access services are commonly divided into interoffice transport and channel terminations. Although the *FNPRM* did not specify how the Commission will deal with this distinction in its regressions, the two types of products will likely need to be included in a single regression because they are often included together in single contracts, with a single discount potentially applying to both (potentially along with other products), and because many CLECs and other providers do not break their circuits out in this way when setting and recording prices.³² However, because competitive conditions may vary across different special access products (thus motivating different regulatory triggers for the two products) the appropriate explanatory variables to explain interoffice transport prices and channel termination prices may vary. Given that different contracts may have different combinations of these products, the differences in competitive conditions across products may create difficulties in model specification like those created by price linkages across areas.

³² See, e.g., *In the Matter of Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, tw telecom Ex Parte Letter, January 10, 2013 ("the Commission should account for the fact that competitive providers of special access do not bill separately for the same special access rate elements as the incumbent LECs.") We understand the ILEC and CLEC pricing may vary on multiple dimensions—for example, ILEC prices typically contain a mileage component, meaning that ILECs charge more for longer circuits, whereas CLECs generally do not charge mileage based rates.

58. Even more basically, as discussed in Section II.C, pricing flexibility is granted separately for interoffice transport and channel terminations, so it is possible for an area to have, say, price caps for channel terminations, but Phase I relief for transport, or Phase I for channel terms and Phase II for interoffice transport. It is unclear how the commission would specify its regressions in such cases and, in any case, the decisions made should be subject to testing and review by outside economists.

3. Linkages across Time

59. Finally, a significant complication arises because special access contracts often cover multiple years, with AT&T's special access contracts typically having terms of three to five years.³³ This means that in any given time period, observed prices will generally reflect competitive conditions from some previous point in time. Moreover, to the extent that contract terms are staggered across observations, the analysis will be further complicated in ways similar to the complexities arising from price linkages across areas and the presence of multiple special access products in contracts.

60. In addition, the presence of long-term contracts means that prices cannot react fully to competitive conditions immediately because some subset of prices in an area may be unable to adjust immediately. In such a situation, one might find no (or a limited) relationship between price and market structure because price changes do not occur immediately. At a

³³ Interview with managers in the AT&T Business Solutions division at AT&T, February 2, 2013.

minimum, the Commission may need to consider some lag structure to deal with this issue.³⁴

However, the limited scope of the sample (two time periods, 24 months apart) coupled with the length of the relevant contracts limits the ability of the Commission to implement such lags effectively. And again, with no single “right answer” to address such concerns, any decisions would need to be subject to testing and review.

61. In summary, these price linkages across geographic areas, products, and time mean that:

- The appropriate explanatory variables to explain special access prices may include some combination of variables from different time periods in other geographic areas and for different products, making model specification quite difficult.
- Econometric error terms (capturing unobserved variation in prices) are likely correlated across cities, products, and time, making inference more difficult.
- Competitive effects may take time to show up and may show up across many geographies and/or products. In other words, changes in the competitive environment for a particular product in a particular geographic area may affect only a portion of the price being observed. Thus, any relations between price and market structure are likely to be muted in the data.

³⁴ That is, the Commission may need to allow for the possibility that prices at a point in time are determined not just by current competitive conditions, but by competitive conditions in previous periods when many of the contracts determining current prices were signed.

B. SELECTING A SAMPLE OF MSAS IN WHICH COMPETITIVE EFFECTS CAN BE STUDIED IS LIKELY TO YIELD BIASED ESTIMATES

62. As discussed in Section II.B, a large fraction of the population resides in areas covered by price cap regulation. In such areas, prices will certainly reflect regulation while, in areas where full pricing flexibility relief has been granted, prices will more fully reflect market forces. To assess the effect of competition on prices, it makes most sense to evaluate products and geographic areas where firms have substantial flexibility to set prices in response to competitive conditions, not in areas subject to price regulation. This is because price regulation could result in price outcomes that have no necessary relationship to market structure or the degree of competition in an area. However, as seen in Table II, above, only roughly one-third of MSAs (covering roughly one-third of the U.S. population living in MSAs) have such relief for both channel terminations and transport, meaning that the sample available for study is unlikely to be representative of the full set of MSAs. Even if the analysis pooled areas subject to different regulatory regimes, it would be necessary, at a minimum, to treat observations differently depending on the nature of price regulation (no relief, Phase I, Phase II).

63. Treating MSAs separately depending on the regulatory regime creates complications for the type of panel regression proposed by the Commission.³⁵ To determine whether the triggers are set in an effective way one would like to observe flexibly set prices in areas where the triggers have not been met, something that is not possible. Indeed, given that the pricing

³⁵ On the other hand, this does not present problems for a simpler study of whether the triggers have served as a reasonably accurate proxy for alternative competitive deployment by CLECs.

flexibility exists only in areas that have met the triggers, there will be no useful information about how prices vary in areas that have not met the triggers.

64. More generally, even if one wants to study the relationship between prices and economic characteristics other than the triggers, the problem remains that the set of MSAs in which Phase II regulatory relief has been granted—such that prices are determined by competitive conditions without regard to price caps—is a non-random sample of all MSAs. To see the issues this creates, notice that pricing flexibility relief is granted based on a “trigger” that measures alternative facilities deployment. The extent of facilities deployment of rival competitive facilities (which triggers relief) is naturally determined by local market conditions (such as demand and costs). These local conditions, however, cannot be considered broadly representative; otherwise every area in the country would have qualified for pricing flexibility. Thus, basing regression estimation on MSAs where the ILEC has been given Phase II pricing flexibility amounts to restricting the sample to areas that may be better suited to competitive entry. Unless these local area characteristics that lead to entry are fully accounted for, they will end up in the error term. Hence measuring the effect of a trigger variable based on such areas will lead to biased estimates and thus serve as a poor basis for regulatory policy.³⁶ Indeed, the Commission is cognizant of the need to study a representative

³⁶ This is an example of the well-known econometric problem of endogenous sample selection. See, *e.g.*, Kennedy (2003) at 286.

set of MSAs,³⁷ but the need to focus a study on areas that have received regulatory relief (or at least to allow separate estimates in such areas) may make this difficult or impossible.

C. MEASURES OF COMPETITION ARE LIKELY TO BE ENDOGENOUS, YIELDING BIASED ESTIMATES

65. The measures of competition proposed by the Commission (*e.g.*, counts of actual and potential competitors) are likely to be endogenous. Endogeneity arises when one or more explanatory variables is correlated with the statistical error term, a situation that is known to lead to biased estimates of the modeling parameters and thus to cause economic inferences drawn from these parameters to be misleading.³⁸

66. The specific endogeneity concern for the regression methodology proposed in the *FNPRM* is that the number of competitors not only affects price but is itself determined by the underlying market conditions. Put differently, the number of competitors is jointly determined along with price in market equilibrium. The problem this causes is that, when running a regression of price on number of competitors, one might not just capture any true “causal” relationship between the number of competitors and prices. Rather, one might also capture the effect on price of the variables that determine the number of competitors. For example:

³⁷ See *FNPRM*, ¶ 24, “With respect to a sample of geographic regions, it is very difficult to design a representative sample without coming close to covering the entire country.”

³⁸ All standard regression models include statistical error terms. These error terms account for unobserved factors that affect the dependent variable. (See Wooldridge (2002), Chapter 1.)

- If fewer competitors operate in areas with high costs, the econometric estimates may overstate the extent to which competition lowers prices, as a larger number of competitors in an area may simply reflect the fact that the cost of providing service are low. Thus, the measured effect of the number of competitors on prices may end up capturing the effect of low costs on prices.
- Conversely, if more competitors operate in areas with higher demand, the econometric estimates may understate the extent to which more competitors lowers prices, as more competitors may end up being a proxy for high demand to the extent that demand is not perfectly controlled for in the regression.

67. The previous discussion highlights the importance of rich controls, which can help attenuate the potential biases; or at least help diagnose the presence and extent of these biases. In practice, however, because controls for cost and demand conditions are unlikely to be perfect, the measured effect of market structure on price is likely to be some complex combination of the true causal effect of market structure and the effects of underlying demand and cost conditions. Since unobservable cost and demand factors can contaminate the estimated relation between structure and prices in either direction (depending on whether cost or demand unobservables enter the error term), it is challenging even to determine in which direction the bias goes.

68. It may be particularly problematic to rely on endogenous measures of competition as a guide for regulatory decisions. This is because the ultimate goal of the proposed analysis is to identify proxies for competition that may be used on an ongoing basis to regulate special access services. To the extent that these proxies are subject to control by market participants,

the introduction of regulation may affect decisions by firms, and thus changes in regulations may alter the historical relationships on which the regulation was based. As one example, in order to prevent ILECs from being given the freedom to compete fully, CLECs or other firms could avoid expanding or investing in particular ways to avoid tripping particular triggers. If that were the case, such regulation based on endogenous triggers would create inefficiency by providing incentives to refrain from investing.

69. We are confident that the Commission Staff recognizes these endogeneity concerns and is, at least in part, relying on the use of a panel regression to overcome them. The logic of this approach is that a panel regression permits inclusion of controls for time-invariant differences across cross-sectional units of observations (*e.g.*, a geographic area) and thus relies only on changes within a unit over time to identify the effect of market structure on prices. By controlling for differences in supply and demand conditions across units, this approach might lessen endogeneity concerns. However, there are several limitations to this approach:

- First, the relatively short panel (only two years of data in a three-year time period) creates challenges for this approach.³⁹ In particular, given this data structure, most of the observed variation in price and market structure is likely to be across geographic areas. In a two-year period, there might be little change in market structure within any given area. This concern is heightened by the use of long-term contracts in the

³⁹ Although the Commission proposes to collect monthly billing data for the two years covered by its request, it only proposes to collect end-of-year data on location and competition. Therefore, each cross-sectional observation has, at most, two observations over time.

industry. If there is no change in market structure, or if contracts prevent a quick price response to a change in market structure, the panel approach yields no “experiment” to study—meaning that changes in market structure cannot explain observed price changes.

- Second, relying on intertemporal variation within an area may not overcome the concerns about endogeneity since changes in the number of actual and potential competitors over time are also driven by changes in market conditions. When we observe changes in market structure, we have to ask: “What drove the changes?” The answer leads to the same endogeneity concerns, just discussed, regarding a cross-section of areas.

The bottom line is that, even in a panel structure, there is a significant risk that the measured effect of market structure on price will reflect endogeneity bias. As with the other econometric issues described in this section, Commission Staff are likely aware of these issues and they do not necessarily invalidate all results from the study. But these concerns further highlight the need for transparency and careful review of the methods the Commission employs, including a consideration of the impact of endogeneity on observed results.

D. RELEVANT EXPLANATORY VARIABLES MAY BE UNOBSERVABLE

70. Omitting a relevant variable can induce endogeneity because the statistical error term will account for the omitted variable.⁴⁰ If the omitted variable is correlated with other

⁴⁰ Wooldridge (2002), Chapter 4.3.

explanatory variables in the model, this omission will induce correlation between the statistical error term and the included explanatory variable with which the omitted variable is correlated. As a general matter, absent more information, it can be difficult to ascertain either the direction or the magnitude of the bias.

71. In this case, both quality and costs are likely to be factors that affect price and may be particularly hard to measure. For example, for Ethernet-based special access services, customers can generally choose between a wide variety throughput rates and, more generally, between different “classes” of service quality, with higher speeds and service quality levels associated with higher prices. Such quality differences will be particularly problematic for the Commission’s analysis if, for example, ILECs provide higher quality service where competition is greater. In such cases, if quality is not fully observable, the regression analysis might underestimate the effect of competition on price because prices will reflect higher quality levels (or, put differently, the appropriately quality-adjusted price may react more strongly to competition than the measured nominal price).

E. UNDERLYING ECONOMIC RELATIONSHIPS MAY NOT BE STABLE

72. As described above, one purpose of using panel data is to control for unobservable factors that differentiate cities from one another. As such, a maintained assumption of this approach is generally that such unobservable factors remain constant over the relevant time period so that results can be identified from the observed relationships between changes in the dependent variable (price) and changes in the explanatory variables (*e.g.*, underlying market conditions).

73. If underlying unobservable factors are not stable, the panel regression method will not yield reliable results. And in the case of special access services, it is unlikely that unobservable factors remained constant over the relevant sample period. In particular, between 2010 and 2012, there was a substantial shift from TDM-based services to Ethernet or other IP-based services. This is because, “Ethernet is being adopted as the underlying service transport by enterprises, consumer triple-play platforms, and more recently, wireless backhaul Ethernet is replacing legacy services such as SONET, Frame Relay and ATM because it provides more flexible bandwidth options and is highly scalable, which in turn makes it highly cost efficient.”⁴¹ For example, AT&T has increasingly shifted its wireless backhaul from traditional TDM services to alternative technologies. Deutsche Bank indicates that “[a]s of 2Q12, AT&T ran 90% of its wireless data traffic over Ethernet or other ‘enhanced’ backhaul. The company has said that its cost per bit is about 50% lower using enhanced backhaul instead of copper.”⁴² Cowen, an industry analyst, forecasted that spending on Ethernet services would increase from under \$2.0 billion in 2006 to over \$10 billion in 2014.⁴³ This shift likely resulted in changes in the factors that determine the profitability of offering service in ways that may not be fully captured by observable variables.

74. To the extent that relevant factors did change in ways that are correlated with competitive conditions, this may lead to bias in the estimated effects of competitive

⁴¹ Cowen and Company (2010), “Telecom and Data Services – Fiber: A Sector Evolves,” at 14.

⁴² Deutsche Bank Securities (2012), “US Telecom Services: 2012Q3 Earnings Survival Guide,” at 12.

⁴³ Cowen and Company (2010), “Telecom and Data Services – Fiber: A Sector Evolves,” at 15.

conditions, as explained above. For example, a change in technology that expands the number of buildings that a CLEC can profitably serve with its existing network increases the scope and intensity of “potential” competition and, therefore, changes the link between market structure and price. When one pools the two periods, it is not clear how to interpret the results because each period has a different relationship between market structure and price, so a standard panel data approach does not work.

75. Moreover, to the extent that the Commission intends to use the results of its analysis on an ongoing basis, the lack of stability causes additional concern because estimates based on economic relationships in 2010 to 2012 may have little bearing on economic relationships many years hence. For example, industry observers anticipate the shift toward Ethernet and other IP-based services to continue. Cowen forecasts that “Ethernet and IP VPN will represent nearly 80% of the data services market in 2014 versus 55% in 2010.”⁴⁴ Between 2006 and 2014, Cowen forecast that revenues from leased lines would fall by more than 50 percent.⁴⁵

V. THE COMMISSION SHOULD CONSIDER POTENTIAL ALTERNATIVE ANALYSES THAT MAY BE INFORMATIVE USING THE COLLECTED DATA

76. As discussed above in Section IV, many of the econometric concerns with the Commission’s proposed regression framework derive from use of price as the dependent

⁴⁴ Cowen and Company (2010), “Telecom and Data Services – Takeaways from the Ethernet Expo,” at 2.

⁴⁵ *Id.*.

variable and/or use of market structure as the independent variable(s). Moreover, even if these concerns could be appropriately addressed, it is unclear how the Commission's proposed regression framework could be used to determine whether the existing triggers for special access pricing flexibility relief are working as intended, or how the regression framework could be used to develop alternative triggers that are easily administered. Finally, it would appear that many of the key explanatory variables being considered by the Commission in its regression analysis (*e.g.*, number of competitors in a particular area) would not readily be observable when making regulatory decisions in the future, casting doubt as to whether the Commission's regression approach can possibly produce an administrable test for pricing flexibility (or broader deregulation) going forward as the relevant explanatory variables change.

77. We believe that a different approach from that currently proposed may ultimately prove easier to undertake and to implement going forward. Specifically, in addition to undertaking any price/market concentration regression analysis, the Commission should also consider a study of whether its existing pricing flexibility triggers, as currently framed or with appropriate modification, provide reasonably accurate proxies for the number of competitors and/or extent of sunk investments in a given area. If it turns out that collocations or another readily observable trigger serves as a reasonably effective proxy for competitive deployment, the Commission will then have available an administrable trigger based on economic principles it has already endorsed. To the extent such an inquiry demonstrates that the existing triggers have not worked as intended, the inquiry may also help to refine those (or alternative) triggers to improve their accuracy.

A. IMPORTANCE OF EASILY ADMINISTERED REGULATIONS

78. The Commission has long recognized the importance of adopting regulations that are not administratively burdensome when developing such regulations to govern the pricing of special access services. For example, when the Commission initially developed the current regulatory regime for special access in 1999, it concluded:⁴⁶

a collocation-based trigger for granting pricing flexibility for special access and dedicated transport reasonably balances our two goals: (1) having a clear picture of competitive conditions in the MSA, so that we can be certain that there is irreversible investment sufficient to discourage exclusionary pricing behavior; and (2) adopting an easily verifiable, bright line test to avoid excessive administrative burdens.

The use of collocation data as a proxy for sunk investments by competitors was endorsed by the Commission in part because “such a collocation-based standard is administratively simple because several BOCs have provided data of this type in support of pending forbearance petitions.”⁴⁷ That is, since the ILECs maintain records of the CLECs collocated at their wire centers for billing and other ordinary-course-of-business reasons, it is easy for ILECs to collect such data in support of petitions for pricing flexibility relief.

79. Other measures of CLEC investment and activity are not as readily available. For example, if the Commission developed triggers based on the number of CLECs serving a building or having fiber routes near a building, such data would have to be collected from third parties each time an ILEC filed for a grant of pricing flexibility. Similarly, if the Commission suggested that an ILEC had to make a showing that it lacked market power in

⁴⁶ *Pricing Flexibility Order*, ¶ 78.

⁴⁷ *Pricing Flexibility Order*, ¶ 85.

order to be granted pricing flexibility relief, such as performing a regression analysis similar to that the Commission is proposing to undertake, such regulations would turn a straightforward regulation process into a mini-merger review, which clearly would be administratively burdensome for the ILECs and the Commission, as well as for third parties that would need to provide their data for such an analysis. Thus, if the Commission decides to change the triggers for pricing flexibility relief, it is important to be mindful that any such change continue to be an “easily verifiable, bright line test” that avoids “excessive administrative burdens.”

B. THE COMMISSION SHOULD TEST THE EXTENT TO WHICH ITS EXISTING COLLOCATION TRIGGERS REASONABLY IDENTIFY ALTERNATIVE NETWORK DEPLOYMENT AND KEEP AN OPEN MIND AS TO OTHER ALTERNATIVES TO THE PROPOSED “MULTI-FACETED” REGRESSION

80. As noted above, although the “multi-faceted” regression proposed in the *FNPRM* may generate valuable insights into the special access marketplace, it is a highly challenging undertaking that may not yield economically meaningful results. However, even if the multi-faceted regression does not produce meaningful results—or as a supplement to any meaningful results it does produce—the Commission’s data collection efforts may still provide useful information about the extent of deployment of competitive facilities, including fiber, cable and wireless technologies. As the Commission has long recognized, the presence of competitors who have made sunk investments in deploying competitive facilities reduces the ability of incumbent providers to engage in anticompetitive pricing.⁴⁸ Following this

⁴⁸ In the *Pricing Flexibility Order* (¶ 80), the Commission noted that in “telecommunications, where variable costs are a small fraction of total costs, the presence of facilities-based

logic, the Commission adopted fiber-based collocation triggers as a proxy for the deployment of alternative network facilities in the areas where there is special access demand.

81. We do not understand proponents of special access regulation to be contesting the Commission's basic economic reasoning. Rather, we understand their primary complaint to be that the collocation triggers overstate actual competitive entry, or at least the geographic scope of competitive entry. We understand that ILECs, on the other hand, contend that the triggers are under-inclusive because they do not reflect competition from entities such as cable companies or fixed wireless providers.

82. Such disputes over the accuracy of collocations as a proxy for sunk investments in network deployment by non-ILEC providers seem relatively straightforward to resolve empirically using the market data that the Commission proposes to collect. Thus, the Commission should use the data it will be gathering to examine the relationship between fiber-based collocations and the level of competitive entry in different areas.

83. To be sure, this analysis might show that the collocation triggers have not functioned as intended. They may be over-inclusive, as regulatory proponents have claimed, or under-inclusive, as AT&T and other ILECs have contended. In either case, the Commission could consider whether more geographically targeted relief is sufficient to cure any deficiency in use of collocation as a proxy or ways of accounting for intermodal competition.⁴⁹ The

competition with significant sunk investment makes exclusionary pricing behavior costly and highly unlikely to succeed.”

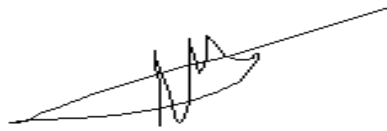
⁴⁹ Of course, if the existing triggers are under-inclusive, they would still serve as a conservative trigger for identifying where pricing flexibility was appropriate.

Commission could also consider undertaking alternative regression analyses that do not have the same methodological issues as one based on price/market structure and that might suggest proxies that might prove more administrable than what would obtain from the proposed regression analysis. The fundamental point is that any decision by the Commission to pursue a price/market structure regression analysis should not come at the expense of analyses that may be easier to conduct and ultimately generate more administrable rules.

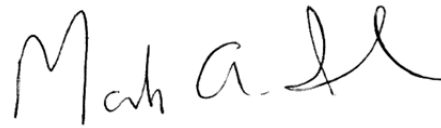
VI. CONCLUSION

84. As described in this Declaration, the Commission is proposing to undertake a potentially informative but also challenging econometric analysis. We have provided some suggestions regarding ways to maximize the value of this undertaking. We look forward to continuing to work with the Commission in a collaborative process as the data collection and analysis continues.

I declare, under penalty of perjury, that the foregoing is true and correct.

A handwritten signature in black ink, appearing to be 'Igal Hendel', written over a horizontal line.

Igal Hendel

A handwritten signature in black ink, appearing to be 'Mark A. Israel', written over a horizontal line.

Mark A. Israel

February 11, 2013